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Louis L. Steers

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Louis L. Steers
Dryden Flight Research Center
Edwards, California

FLIGHT-MEASURED AFTERBODY PRESSURE COEFFICIENTS

FROM AN AIRPLANE HAVING TWIN SIDE-BY-SIDE JET

ENGINES FOR MACH NUMBERS FROM 0.6 TO 1.6

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INTRODUCTION

Flight-measured performance has often differed significantly from that predicted from wind-tunnel tests of small-scale models (refs. 1 to 7). Many of the differences can be attributed to the general limitations of wind-tunnel testing, such as the difficulty in matching flight Reynolds numbers and the effects of tunnel wall reflections. Additional discrepancies are found in the wind-tunnel testing of afterbodies because of sting support requirements that change the geometry of the model afterbody, improper simulation of flow interference effects from adjacent stabilizing or control surfaces, and improper simulation of the effects of airframe-exhaust interactions, which are especially applicable to configurations with two side-by-side exhausts.

To help achieve a better understanding of the effects of scale, Reynolds number, jet exhaust, and wind-tunnel supports on the determination of full-scale flight afterbody performance based on wind-tunnel testing, afterbody pressures were obtained in the wind tunnel and in flight for the YF-17 aircraft, which has twin side-by-side jet engines. First, wind-tunnel tests were conducted on a 0.1-scale model to obtain comprehensive pressure data over the afterbody and nozzle regions, as described in Wind Tunnel Results From a Nozzle Afterbody Test of a 0.1-Scale Fighter Aircraft in the Mach Number Regime of 0.6 to 1.6, by Ernest J. Lucas (AEDC-TR-78-25, Arnold Engineering Dev. Center, Arnold AFS, Tenn., June 1978). For these tests, the model was supported alternately by a sting and by the wingtips so that the sting support effects could be defined. Exhaust flow effects were also simulated using unheated air. Later, similar tests were made using a 0.2-scale model, as described in Wind Tunnel Results From a Nozzle Afterbody Test of a 0.2-Scale Fighter Aircraft in the Mach Number Regime of 0.6 to 1.5, by Ernest J. Lucas (AEDC-TR-79-10, Arnold Engineering Dev. Center, Arnold AFS, Tenn., May 1979).

Following the 0.1-scale model tests, similar data were obtained on the full-scale YF-17 aircraft. The 3-month flight program was conducted by the U.S. Air Force, the U.S. Navy, the manufacturers of the airframe and engines, and the NASA Dryden Flight Research Center. Afterbody pressures were measured over the left boattail of the YF-17 fuselage and over the external surfaces of the left engine and exhaust nozzle. The data were obtained from 10 flights at Mach numbers ranging from 0.60 to 1.60 and altitudes from 2300 meters (7500 feet) to 15,200 meters (50,000 feet). The Reynolds number based on fuselage length ranged from approximately 0.60×10^8 to 2.60×10^8.

This report presents the results of the flight program.

SYMBOLS

Physical quantities in this report are given in the International System of Units (SI) and parenthetically in U.S. Customary Units. The measurements were taken in Customary Units. Factors relating the two systems are presented in reference 8.

$AE\ L$	left nozzle exit area, cm^2 (in^2)
$AE\ R$	right nozzle exit area, cm^2 (in^2)
$ALPHA$	angle of attack, deg
$AN\ CG$	normal acceleration at the center of gravity, g
BCL	bottom centerline of vehicle
$BETA$	angle of sideslip, deg
CP	pressure coefficient, $\dfrac{PL - (PS\ 2)}{Q}$
$DA\ L$	deflection of left aileron, deg
$DEL\ P$	fuselage reference static pressure minus nose-boom reference static pressure, N/m^2 (lb/in^2)
$DH\ L$	deflection of left horizontal tail, deg
$DR\ L$	deflection of left rudder, deg
DSB	speed brake deflection, deg
H	pressure altitude, m (ft)
L	reference fuselage length, cm (in.)

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M	Mach number
NPR	nozzle pressure ratio (calculated from manufacturer-supplied engine performance tables)
PHI	circumferential location measured clockwise from vertical (fig. 4), deg
PL	local pressure, N/m^2 (lb/in^2)
$PS\ 1$	free-stream static pressure, N/m^2 (lb/ft^2)
$PS\ 2$	static reference pressure, N/m^2 (lb/ft^2)
Q	dynamic pressure, N/m^2 (lb/ft^2)
R	Reynolds number based on fuselage length of 1804.87 cm (710.58 in.)
RN	unit Reynolds number, per m (per ft)
TCL	top centerline of vehicle
W	gross weight, kg (lb)
X	fuselage station, cm (in.)

DESCRIPTION OF YF-17 AIRPLANE AND TEST CONFIGURATION

The YF-17 airplane (fig. 1) is a lightweight fighter prototype with twin canted vertical tails located forward of the horizontal tail. The airplane incorporates an all-movable horizontal stabilizer, programed leading and trailing edge flaps, and conventional ailerons. A three-view drawing of the YF-17 airplane is shown in figure 2, and complete descriptions of the airplane and its physical characteristics are included in references 9 and 10.

The propulsion system consists of two side-by-side YJ101-GE-100 low-bypass-ratio turbojet engines with afterburners. The engines are installed in twin ducts having fixed geometry inlets and variable area exhaust nozzles. The iris-type exhaust nozzles have a plate and leaf arrangement that provides the proper nozzle area for nonafterburning and afterburning engine operation.

Boattail pressure coefficients were obtained for the left fuselage afterbody and nozzle (fig. 3, shaded area). There were 39 flush orifices distributed over the fuselage afterbody and 32 orifices on the outer surface of the nozzle. The locations of these orifices are shown in figure 4. All orifices were positioned on the airplane to match the selected orifice locations on the 0.1-scale wind-tunnel model as closely as structurally practical.

The orifice rows along the fuselage at several circumferential locations were located as far forward as was practical in order to define the upstream flow conditions. All pressure orifices were flush with the local surface, and the orifice edges were sharp and free of burrs.

There are several features of the full-scale airplane that complicate the problem of flow simulation on small-scale models. The features having the most significance are: the flush, screen-covered, engine bay purge exhausts, which are 11.43 centimeters (4.5 inches) by 27.94 centimeters (11 inches) and are located on the top and bottom centerlines of each engine bay (fig. 5); the compressor face bleed opening on the upper fuselage surface (fig. 5); and the oil drain and oil overflow protuberances on the lower fuselage surface. Table 1 lists the protuberances that existed on the full-scale vehicle near the pressure orifices. These protuberances were not simulated on the 0.1-scale and 0.2-scale models.

INSTRUMENTATION

Two 48-port multiplexing valves (Scanivalves), each having a differential pressure transducer, were installed in the engine bay and used to measure the pressures for the afterbody orifices. Static orifices on the airplane's nose boom were used as the reference pressure source for these transducers. The pressure source was monitored by a digital precision absolute pressure transducer contained in an environmentally controlled compartment. The pressure measurements for each Scanivalve were made in such a way that for at least one Scanivalve port, both sides of the transducer were exposed to the reference pressure. This procedure provided in-flight zero readings, which substantially reduced the uncertainty of the differential pressure measurements.

The total and static pressure measurements obtained from the nose boom, as described in references 11 and 12, were also used to calculate the free-stream Mach number.

The aircraft angle of attack measurements were taken from vanes located on the cheeks of the fuselage. The angles were calibrated through the digital air data computer (DADC). The angle of sideslip was obtained from a vane on the nose boom.

The positons of all the control surfaces (ailerons, horizontal stabilizers, speed brake, leading and trailing edge flaps, and rudder) were recorded with an onboard 10-bit pulse code modulation (PCM) system. Other parameters, such as nozzle exit area and gross weight, were also recorded on the PCM system, as were the values from the two Scanivalves which measured all the surface pressures.

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DATA UNCERTAINTY

The pressure coefficients in this study are based on the equation

$$CP = \frac{PL - (PS\ 2)}{Q}$$

The estimated uncertainty values for the pressure coefficients were determined by the procedures given in references 13 and 14. In the following table, these uncertainty values are compared with the scatter observed in the experimental values.

M	H, m (ft)	Estimated ΔCP	ΔCP observed at $AN\ CG = 1g$	ΔCP observed at $AN\ CG > 1g$
0.60	7,800 (25,700)	±0.024	±0.005	------
0.60	12,200 (40,000)	±0.048	±0.009	±0.020
0.90	8,400 (27,400)	±0.014	±0.008	±0.009
0.90	15,200 (50,000)	±0.035	±0.011	------
1.20	7,600 (25,000)	±0.006	±0.002	------

The calculations of the estimated uncertainties in the pressure coefficients accounted for the uncertainty in the static pressure position error and the pressure transducer uncertainty, including the effects of an estimated -6.6° C (20° F) uncertainty in the transducer environment temperature. As can be seen from the preceding table, the observed scatter bands are significantly smaller than the estimated band of uncertainty, which indicates good repeatability of the measurements.

Each pressure coefficient data point included in this study was based on the average of several Scanivalve cycles. This procedure reduces the scatter and is a factor in the observed scatter's being small as compared with the estimated uncertainty. Sufficient steady-state conditions were maintained during the data runs to minimize the effects of lag on the data.

Based on the averaging procedure, the application of in-flight zero corrections, and the careful avoidance of transient flight conditions, the estimated average uncertainty of the pressure coefficients based on the flight data is ±0.01 for 1g flight conditions and ±0.02 for the elevated g cases.

The manufacturer calibrated the pitot-static system using a combination of tower flyby, pacer, and radar tracking runs. According to the manufacturer's YF-17 Test Report (NOR 74-282, Northrop Corp., Jan. 1975), the maximum uncertainty in Mach number after correcting for position error occurs at a Mach number of 0.975 and is ±0.035.

With the YF-17 aircraft, angle of attack can be obtained by two methods. One method, the use of the nose-boom-mounted flight test vane, was not used in this study because of problems encountered in the measurements. The second method is to use the aircraft's angle of attack system. For this study, the measurements were corrected through the use of the DADC. The angle of attack accuracy was considered to be approximately ±0.2° for the range of angles of attack used for the present study (manufacturer's YF-17 Test Report, NOR 74-282).

FLIGHT CONDITIONS

For the subject tests, the Mach numbers ranged from 0.60 to 1.60 at altitudes from 2300 meters (7500 feet) to 15,200 meters (50,000 feet). Unit Reynolds number varied from 3.54×10^6 per meter (1.08×10^6 per foot) to 16.14×10^6 per meter (4.92×10^6 per foot), and the effective Reynolds number based on fuselage length varied from 0.57×10^8 to 2.58×10^8.

Each test condition was stabilized and remained constant for approximately 1 minute prior to data acquisition. The automatic flap schedule, a mode for automatically setting flaps without pilot input, was kept in the inactive mode in order to limit the configuration variables.

The flight conditions flown to obtain the pressure coefficient data for the present study are listed in table 2. The combination of speed and altitude forms a matrix of constant Mach numbers and constant unit Reynolds numbers. This matrix of test conditions was flown to correspond to the conditions tested for the 0.1-scale and 0.2-scale wind-tunnel models.

PRESENTATION OF THE DATA

The afterbody pressure coefficients derived from the pressure measurements for the flight conditions in table 2 are listed in table 3 in a form convenient for comparison with wind-tunnel data. The flight conditions, such as Mach number, dynamic pressure, and control surface positions, are also identified in the table. Selected data from this table are presented in the next section for a general discussion of parameter effects on the pressure coefficient.

RESULTS AND DISCUSSION

A typical time history for three pressure orifices located at $X/L = 0.99$ is presented in figure 6. The figure shows that the maximum deviations of the pressure coefficient data from the average values (solid lines) are well within the uncertainty bands (dashed lines). This result validates the steadiness of the flight data runs and helps to verify the quoted accuracy.

Flight pressure coefficients obtained from four representative circumferential locations at three Mach number conditions are shown in figure 7. At all three Mach numbers presented, the flow over the afterbody tends to expand as the boattail angle increases, then recompresses over the nozzle because of the high pressure region at the nozzle exit. However, because the orifice row at $PHI = 0°$ is in the positive pressure field of the vertical tail from $X/L = 0.84$ to $X/L = 0.94$, the general trend does not hold. In this region the flow is in compression, but after passing the vertical tail trailing edge the flow follows the same trend as the flow at the other orifice rows.

The data presented in figure 8 show the effect of angle of attack for the three representative Mach numbers. The data indicate that for small angles of attack (below approximately 5°) the influence of the aircraft's attitude on the flow over the afterbody region is minimal throughout the Mach number range of this study, although the influence of the vertical tail is again evident for the flow at $PHI = 0°$.

The effects of variations in NPR are shown in figure 9. For the nonafterburning operating condition ($AE\ L = 1484\ cm^2$ (230 in^2)) shown in figures 9(a) and 9(b), the pressure coefficient is more positive than for the afterburning operating condition shown in figure 9(c). Generally speaking, the increased NPR appears to affect only the nozzle region.

Reynolds number variations within each Mach number presented in figure 10 show that the pressure coefficients fall within their repeatability bands. No direct Reynolds number effect is indicated by this figure.

The afterbody pressure data presented in figures 7 to 10 show the effects of some flight dependent parameters for a few of the test conditions given in table 2. The data from the present study (table 3), along with the data from the wind-tunnel tests of the 0.1-scale and 0.2-scale models, add to the data bank for evaluating nozzle afterbody wind-tunnel test techniques.

Dryden Flight Research Center
National Aeronautics and Space Administration
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TABLE 1.—LOCATION OF SURFACE PRESSURE ORIFICES
RELATIVE TO POTENTIAL INTERFERENCE SOURCES AND PROTUBERANCES

Orifice location relative to aircraft		Orifice location relative to interference source protuberance
X/L	PHI, deg	
0.84	0	25 cm (10 in.) aft of bleed door
0.90		18 cm (7 in.) aft of access plate
0.94		8 cm (3 in.) ahead of bay purge bleed
0.83	180	13 cm (5 in.) ahead of oil drain
0.88		18 cm (7 in.) aft of two oil drains
0.93		15 cm (6 in.) ahead of access panel
0.86	225	Halfway between two sets of four screws each
0.88		5 cm (2 in.) aft of and 3 cm (1 in.) above discontinuity
0.96		Behind horizontal stabilizer
0.88		Behind horizontal stabilizer
0.91	315	15 cm (6 in.) aft of trailing edge of rudder
0.93	*	15 cm (6 in.) aft of gap
0.96	*	In valley between engines

*Located at top centerline of vehicle (TCL).

TABLE 2.—FLIGHT TEST CONDITIONS

AN CG, g	M	H, m (ft)	ALPHA, deg
1	0.620	2,460 (8,070)	1.1
	0.610	2,470 (8,090)	2.1
	0.610	7,590 (24,900)	3.4*
	0.610	7,620 (25,000)	3.6
	0.600	10,120 (33,200)	6.0
	0.640	12,300 (40,400)	6.4
	0.640	12,300 (40,400)	6.5
	0.640	12,300 (40,400)	6.5*
	0.640	12,130 (39,800)	7.0
	0.610	12,150 (39,900)	8.0
	0.600	12,090 (39,700)	8.8
	0.820	3,000 (9,700)	1.1
	0.810	6,000 (19,800)	1.5
	0.900	3,200 (10,500)	0.9
	0.910	5,530 (18,100)	0.9
	0.900	8,530 (28,000)	1.4
	0.900	8,390 (27,500)	1.4*
	0.930	12,780 (41,900)	2.6
	0.900	12,860 (42,100)	2.7*
	0.910	15,260 (50,100)	3.6
	0.890	15,190 (49,800)	4.0
	1.190	7,510 (24,600)	0.7
	1.180	7,910 (25,900)	0.8
	1.170	9,280 (30,500)	1.5
	1.170	12,000 (39,300)	2.1
	1.250	15,210 (49,900)	2.9
	1.590	10,990 (36,100)	0.8
	1.470	12,160 (39,900)	1.3*
	1.580	12,750 (41,800)	1.4

*Flight test points that correlate most closely with wind-tunnel conditions.

TABLE 2.—Concluded

AN CG, g	M	H, m (ft)	ALPHA, deg
1.2	0.900	14,840 (48,700)	4.0
	0.960	14,980 (49,100)	4.4
	0.960	15,160 (49,700)	4.5
↓	1.240	14,910 (48,900)	0
	1.240	15,140 (49,700)	3.1*
1.3	0.890	15,150 (49,700)	5.8*
2	0.600	3,030 (10,000)	2.4
	0.620	2,970 (9,700)	3.1*
	0.630	5,400 (17,700)	4.2
	0.600	5,240 (17,200)	5.4
	0.620	7,630 (25,000)	6.5*
	0.910	4,070 (13,400)	1.4*
	0.930	8,230 (27,000)	2.4
	0.880	8,340 (27,800)	2.6*
	0.870	8,510 (27,900)	2.6
	0.950	12,870 (42,200)	4.8
	1.200	7,860 (25,800)	2.1*
	1.180	8,160 (26,800)	2.1
	1.190	12,230 (40,100)	3.0*
↓	1.180	12,520 (41,100)	3.9*
4	0.628	2,380 (7,800)	4.9
	0.621	2,460 (8,100)	5.7
	0.590	2,640 (8,700)	6.2*
	0.920	3,210 (10,500)	2.1
	0.920	3,940 (12,900)	2.5*
	0.880	7,690 (25,200)	4.5*
↓	1.150	6,940 (22,800)	3.0*

*Flight test points that correlate most closely with
  wind-tunnel conditions.

TABLE 3.—AFTERBODY AND NOZZLE PRESSURE COEFFICIENTS. L = 1804.87 CM (710.58 IN.)

[Q, lb/ft^2; ALPHA, deg; BETA, deg; RN, per ft; AN CG, g; W, lb; DA L, deg; DH L, deg; DR L, deg; DSB, deg; AE L, in^2; AE R, in^2; PS 1, lb/ft^2; PS 2, lb/ft^2; H, ft; DEL P, lb/in^2; PHI, deg; X, in.; CP = 0.000 indicates pressure not available]

M = .618   AN CG = .96   AE L = 204

C = 418.9   W = 26160   AE R = 204

ALPHA = 1.09   DA L = 1.05   PS 1 = 1580.4

BETA = -.56   DH L = -.50   PS 2 = 1580.5

NPR = 2.00   DF L = -.17   H = 8074

RN (10^{-6}) = 3.57   DSB = -.37   DEL P = -.06

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.186	157.5	693.00	-.104	247.5	685.00	-.142
0.0	620.00	-.135	157.5	700.00	-.009	252.5	685.00	-.130
0.0	637.00	-.078	180.0	590.15	-.050	282.0	685.00	-.123
0.0	665.00	-.041	180.0	625.35	-.045	292.5	685.00	-.105
0.0	675.00	-.160	180.0	661.60	-.041	315.0	644.35	-.046
0.0	685.00	-.183	180.0	685.00	-.145	315.0	658.00	-.087
0.0	687.00	-.187	180.0	687.30	-.163	315.0	670.25	-.092
0.0	693.00	-.202	180.0	693.00	-.134	315.0	685.00	-.135
0.0	700.00	-.003	181.0	694.00	-.107	320.0	687.30	-.164
0.0	706.00	-.109	180.0	700.00	-.008	315.0	693.00	-.116
22.5	693.00	-.147	180.0	706.00	-.104	315.0	695.00	-.048
22.5	700.00	-.022	202.5	693.00	-.153	315.0	700.00	.026
45.0	693.00	-.033	215.0	685.00	-.138	315.0	702.00	-.090
45.0	700.00	-.019	215.0	687.30	-.170	315.0	706.00	-.121
45.0	706.00	.028	225.0	520.00	-.052	TCL	658.70	-.028
50.0	685.00	-.131	225.0	571.00	-.044	TCL	685.00	-.084
50.0	687.30	-.163	225.0	611.00	-.012	BCL	586.00	-.073
77.0	685.00	.047	225.0	624.50	-.041	BCL	646.00	-.071
90.0	693.00	.059	225.0	643.00	-.067	BCL	671.00	-.041
90.0	706.00	.025	225.0	667.00	-.057			
135.0	685.00	-.065	225.0	693.00	-.151			
135.0	687.30	-.065	225.0	695.00	-.067			
135.0	693.00	-.058	225.0	700.00	.025			
135.0	695.00	.026	225.0	702.00	.072			
135.0	700.00	.035	225.0	706.00	.120			
135.0	702.00	.042						
135.0	706.00	.046						

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TABLE 3.—Continued

M = .667
G = 403.5
ALPHA = 2.12
BETA = -.61
NFR = 1.98
RN (10^{-6}) = 3.57

AN CG = .93
W = 20189
DA L = 1.04
DH L = -.54
DR L = -.14
OSB = -.32

AE L = 204
AE R = 204
PS 1 = 1579.0
PS 2 = 1579.0
M = 8089
DEL P = -.06

PHI	X	CP
0.0	596.00	-.185
0.0	620.00	-.133
0.0	637.00	-.075
0.0	665.00	-.040
0.0	675.00	-.158
0.0	685.00	-.181
0.0	687.00	-.186
0.0	693.00	-.202
0.0	700.00	-.002
0.0	706.00	-.108
22.5	693.00	-.150
22.5	700.00	-.019
45.0	693.00	-.034
45.0	700.00	-.017
45.0	706.00	-.028
50.0	685.00	-.129
50.0	687.30	-.166
77.0	685.00	-.051
90.0	693.00	.060
90.0	706.00	.020
135.0	685.00	-.067
135.0	687.30	-.069
135.0	693.00	-.013
135.0	695.00	-.026
135.0	700.00	.035
135.0	702.00	.040
135.0	706.00	.046

PHI	X	CP
157.5	693.00	-.105
157.5	700.00	.007
183.0	590.15	-.048
180.0	625.35	-.043
180.0	661.60	-.038
180.0	685.00	-.143
180.0	687.30	-.160
180.0	693.00	-.133
181.0	694.00	-.107
180.0	700.00	-.007
180.0	755.00	-.104
202.5	693.00	-.153
215.0	685.00	-.135
215.0	687.30	-.167
225.0	520.00	-.049
225.0	571.00	-.042
225.0	611.00	-.009
225.0	624.50	-.039
225.0	643.00	-.065
225.0	667.00	-.054
225.0	693.00	-.150
225.0	695.00	-.067
225.0	700.00	.025
225.0	702.00	.072
225.0	706.00	.120

FHI	X	CP
247.5	685.00	-.140
252.5	685.00	-.128
282.0	685.00	-.121
292.5	685.00	-.103
315.0	644.35	-.043
315.0	658.00	-.085
315.0	670.25	-.089
315.0	685.00	-.132
320.0	687.30	-.162
315.0	693.00	-.116
315.0	695.00	-.048
315.0	703.00	-.026
315.0	702.00	-.089
315.0	706.00	-.120
TCL	658.70	-.027
TCL	685.00	-.082
RCL	586.00	-.370
RCL	646.00	-.069
ECL	671.00	-.041

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TABLE 3.—Continued

M = .613

G = 207.2

ALPHA = 3.38

BETA = -.62

NFR = 1.99

RN (10^-6) = 2.08

AN CG = .91

W = 20575

DB L = 14.16

DH L = -.17

DP L = -.01

DSB = -.30

AE L = 204

AE R = 204

PS 1 = 794.7

PS 2 = 791.9

H = 24914

DEL P = -.00

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.211	157.5	693.00	-.109	247.5	685.00	-.140
0.0	620.00	-.150	157.5	700.00	.014	252.5	685.00	-.128
0.0	637.00	-.087	180.0	590.15	-.045	282.0	685.00	-.128
0.0	665.00	-.039	180.0	625.35	-.043	292.5	685.00	-.102
0.0	675.00	-.157	180.0	661.60	-.037	315.0	644.35	-.048
0.0	685.00	-.177	180.0	685.00	-.147	315.0	658.00	-.085
0.0	687.00	-.185	180.0	687.30	-.143	315.0	670.25	-.089
0.0	693.00	-.187	180.0	693.00	-.131	315.0	685.00	-.126
0.0	700.00	.012	181.0	694.00	-.110	320.0	687.30	-.153
0.0	706.00	.109	180.0	700.00	.019	315.0	693.00	-.099
22.5	693.00	-.143	180.0	706.00	.108	315.0	695.00	-.032
22.5	700.00	.021	202.5	693.00	-.149	315.0	700.00	-.044
45.0	693.00	-.028	215.0	685.00	-.135	315.0	702.00	-.096
45.0	700.00	.013	215.0	687.30	-.167	315.0	706.00	-.121
45.0	706.00	.028	225.0	520.00	-.030	TCL	658.70	-.012
50.0	685.00	-.119	225.0	571.00	-.034	TCL	685.00	-.080
50.0	687.30	-.152	225.0	611.00	-.005	BCL	586.00	-.065
77.0	685.00	.045	225.0	624.50	-.036	BCL	646.00	-.072
90.0	693.00	.057	225.0	643.00	-.062	BCL	671.00	-.042
90.0	706.00	.024	225.0	667.00	-.052			
135.0	685.00	-.076	225.0	693.00	-.141			
135.0	687.30	-.077	225.0	695.00	-.059			
135.0	693.00	.014	225.0	700.00	.037			
135.0	695.00	.024	225.0	702.00	.085			
135.0	700.00	.031	225.0	706.00	.105			
135.0	702.00	.043						
135.0	706.00	.050						

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TABLE 3.—Continued

M = .605
Q = 201.3
ALPHA = 3.61
BETA = -.24
NPR = 1.84
RN (10^-6) = 2.06

AN CG = .94
W = 21 866
DA L = 4.53
OH L = -1.10
OR L = .08
OSB = -3.19

AE L = 204
AE R = 204
PS 1 = 791.2
PS 2 = 788.0
H = 25008
DEL P = -.00

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.207	157.5	693.00	-.105	247.5	685.00	-.147
0.0	620.00	-.161	157.5	700.00	.016	252.5	685.00	-.137
0.0	637.00	-.098	180.0	590.15	-.058	282.0	685.00	-.139
0.0	665.00	-.046	180.0	625.35	-.050	292.5	685.00	-.112
0.0	675.00	-.166	180.0	661.60	-.044	315.0	644.35	-.054
0.0	685.00	-.186	180.0	685.00	-.155	315.0	658.00	-.092
0.0	687.00	-.194	180.0	687.30	-.173	315.0	670.25	-.096
0.0	693.00	-.189	180.0	693.00	-.131	315.0	685.00	-.133
0.0	700.00	.012	181.0	694.00	-.111	320.0	687.30	-.159
0.0	706.00	-.109	180.0	700.00	-.019	315.0	693.00	-.100
22.5	693.00	-.143	202.5	706.00	-.106	315.0	695.00	-.031
22.5	700.00	.020	215.0	693.00	-.148	315.0	700.00	-.045
45.0	693.00	-.033	215.0	685.00	-.142	315.0	702.00	.090
45.0	700.00	.013	215.0	687.30	-.173	315.0	706.00	.120
45.0	706.00	-.029	225.0	520.00	-.036	TCL	658.70	-.020
50.0	685.00	-.130	225.0	571.00	-.044	TCL	685.00	-.089
50.0	687.30	-.161	225.0	611.00	-.012	BCL	586.00	-.072
77.0	685.00	.036	225.0	624.50	-.042	BCL	646.00	-.078
90.0	693.00	.056	225.0	643.00	-.069	BCL	671.00	-.051
90.0	706.00	.021	225.0	667.00	-.060			
135.0	685.00	-.082	225.0	693.00	-.142			
135.0	687.30	-.083	225.0	695.00	-.060			
135.0	693.00	-.015	225.0	700.00	.039			
135.0	695.00	.022	225.0	702.00	.084			
135.0	700.00	.029	225.0	706.00	.101			
135.0	702.00	.039						
135.0	706.00	.047						

TABLE 3.—Continued

M = .652

Q = 114.8

ALPHA = 6.37

BETA = -.79

NPR = 3.76

RN (10^{-6}) = 1.23

AN CG = .96

M = 20781

DA L = 16.87

DH L = -1.45

DR L = .04

DSB = -.28

AE L = 205

AE R = 205

PS 1 = 388.4

PS 2 = 384.8

H = 40365

DEL P = .03

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.221	157.5	693.00	-.122	247.5	685.00	-.148
0.0	620.00	-.176	157.5	700.00	.015	252.5	685.00	-.133
0.0	637.00	-.115	180.0	690.15	-.047	282.0	685.00	-.131
0.0	665.00	-.045	180.0	625.35	-.045	292.5	685.00	-.099
0.0	675.00	-.169	180.0	661.60	-.043	315.0	644.35	-.067
0.0	685.00	-.166	180.0	685.00	-.158	315.0	658.00	-.099
0.0	687.00	-.167	180.0	687.30	-.247	315.0	670.25	-.095
0.0	693.00	-.145	180.0	693.00	-.124	315.0	685.00	-.121
0.0	700.00	-.032	181.0	694.00	-.095	315.0	687.30	-.142
0.0	706.00	.110	180.0	700.00	.036	320.0	693.00	-.072
22.5	693.00	-.131	180.0	706.00	-.106	315.0	695.00	-.009
22.5	700.00	-.015	202.5	693.00	-.136	315.0	700.00	.058
45.0	693.00	-.039	215.0	685.00	-.140	315.0	702.00	.106
45.0	700.00	.078	215.0	687.30	-.164	315.0	706.00	-.133
45.0	706.00	.031	225.0	520.00	-.007	TCL	658.70	-.027
50.0	685.00	-.124	225.0	571.00	-.032	TCL	685.00	-.095
50.0	687.30	-.153	225.0	611.00	.076	BCL	586.00	-.067
77.0	685.00	.016	225.0	624.50	-.032	BCL	646.00	-.081
90.0	693.00	.038	225.0	643.00	-.067	BCL	671.00	-.056
90.0	706.00	-.110	225.0	667.00	-.056			
135.0	685.00	-.099	225.0	693.00	-.106			
135.0	687.30	-.099	225.0	695.00	-.018			
135.0	693.00	-.032	225.0	700.00	.056			
135.0	695.00	-.110	225.0	702.00	.102			
135.0	700.00	.027	225.0	706.00	.115			
135.0	702.00	.043						
135.0	706.00	.054						

TABLE 3.—Continued

M = .604

Q = 138.4

ALPHA = 5.98

BETA = -.71

NPR = 2.69

RN (10^-6) = 1.52

AN CG = 1.03

W = 22595

DA L = 3.85

DH L = -1.31

DR L = -.02

DSB = -3.29

AE L = 204

AE R = 205

PS 1 = 546.5

PS 2 = 542.3

M = 33197

DEL P = .02

PHI	X	CP		PHI	X	CP		PHI	X	CP
0.0	596.00	-.218		157.5	693.00	-.121		247.5	685.00	-.148
0.0	620.00	-.169		157.5	700.00	.012		252.5	685.00	-.137
0.0	637.00	-.110		180.0	590.15	-.044		282.0	685.00	-.137
0.0	665.00	-.045		180.0	625.35	-.039		292.5	685.00	-.105
0.0	675.00	-.173		180.0	661.60	-.034		315.0	644.35	-.062
0.0	685.00	-.174		180.0	685.00	-.160		315.0	658.00	-.099
0.0	587.00	-.178		180.0	687.30	-.178		315.0	670.25	-.098
0.0	693.00	-.156		180.0	693.00	-.131		315.0	685.00	-.130
0.0	700.00	.025		181.0	694.00	-.107		320.0	687.30	-.148
0.0	706.00	-.101		180.0	700.00	-.030		315.0	693.00	-.084
22.5	693.00	-.132		180.0	706.00	.101		315.0	695.00	-.022
22.5	700.00	-.018		202.5	693.00	-.143		315.0	700.00	-.052
45.0	693.00	-.034		215.0	685.00	-.142		315.0	702.00	-.103
45.0	700.00	-.008		215.0	687.30	-.172		315.0	706.00	-.119
45.0	706.00	-.025		225.0	520.00	-.006		TCL	658.70	-.030
50.0	685.00	-.126		225.0	571.00	-.027		TCL	685.00	-.097
50.0	687.30	-.153		225.0	611.00	-.001		BCL	586.00	-.011
77.0	685.00	-.023		225.0	624.50	-.025		BCL	646.00	-.074
90.0	693.00	-.048		225.0	643.00	-.055		BCL	671.00	-.055
90.0	706.00	.014		225.0	667.00	-.052				
135.0	685.00	-.100		225.0	693.00	-.131				
135.0	687.30	-.103		225.0	695.00	-.044				
135.0	693.00	-.026		225.0	700.00	.048				
135.0	695.00	-.018		225.0	702.00	.097				
135.0	700.00	.027		225.0	706.00	.109				
135.0	702.00	.040								
135.0	706.00	.045								

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TABLE 3.—Continued

M = .540	AN CG = .91	AE L = 205
Q = 110.3	W = 20798	AE R = 205
ALPHA = 6.49	DA L = 16.98	PS 1 = 388.5
BETA = -.81	DH L = -1.70	PS 2 = 385.2
NPR = 3.65	DR L = -.02	M = 40351
QN (10^{-6}) = 1.20	DSB = -.28	DEL P = .03

PHI	X	CP
0.0	596.00	-.213
0.0	620.00	-.170
0.0	637.00	-.112
0.0	665.00	-.048
0.0	675.00	-.170
0.0	685.00	-.164
0.0	687.00	-.168
0.0	693.00	-.143
0.0	700.00	-.027
0.0	706.00	-.102
22.5	693.00	-.132
22.5	700.00	-.012
45.0	693.00	-.040
45.0	700.00	-.005
45.0	706.00	-.023
50.0	685.00	-.127
50.0	687.30	-.151
77.0	685.00	-.016
90.0	693.00	-.036
90.0	706.00	-.008
135.0	685.00	-.102
135.0	687.30	-.100
135.0	693.00	-.038
135.0	695.00	-.005
135.0	700.00	-.025
135.0	702.00	-.042
135.0	706.00	-.053

PHI	X	CP
157.5	693.00	-.126
157.5	700.00	-.008
180.0	590.15	-.048
180.0	625.35	-.048
180.0	661.60	-.040
180.0	685.00	-.157
180.0	687.30	-.243
180.0	693.00	-.126
181.0	694.00	-.098
180.0	700.00	-.033
180.0	706.00	-.103
202.5	693.00	-.137
215.0	685.00	-.140
215.0	687.30	-.164
225.0	520.00	-.003
225.0	571.00	-.033
225.0	611.00	-.003
225.0	624.50	-.031
225.0	643.00	-.061
225.0	567.00	-.055
225.0	693.00	-.109
225.0	695.00	-.020
225.0	700.00	-.055
225.0	702.00	.100
225.0	706.00	.109

PHI	X	CP
247.5	685.00	-.149
252.5	685.00	-.136
282.0	685.00	-.130
292.5	685.00	-.102
315.0	644.35	-.067
315.0	658.00	-.099
315.0	670.25	-.095
315.0	685.00	-.121
320.0	687.30	-.138
315.0	693.00	-.077
315.0	695.00	-.014
315.0	700.00	-.057
315.0	702.00	-.103
315.0	706.00	-.128
TCL	658.70	-.025
TCL	685.00	-.093
BCL	586.00	-.065
BCL	646.00	-.082
BCL	671.00	-.059

TABLE 3.—Continued

M =	.636		AN CG =	.95		AE L =	205
Q =	111.9		W =	22601		AE R =	205
ALPHA =	6.96		DA L =	4.45		PS 1 =	399.1
BETA =	-.18		DH L =	-1.44		PS 2 =	395.3
NPR =	3.24		DR L =	.70		W =	39793
RN (10^-6) =	1.22		DSB =	-3.11		DEL P =	.04

PHI	X	CP		PHI	X	CP		PHI	X	CP
0.0	596.00	-.223		157.5	693.00	-.122		247.5	685.00	-.138
0.0	620.00	-.179		157.5	700.00	.013		252.5	685.00	-.129
0.0	637.00	-.112		180.0	590.15	-.040		282.0	685.00	-.128
0.0	665.00	-.045		180.0	625.35	-.035		292.5	685.00	-.099
0.0	675.00	-.173		180.0	661.60	-.026		315.0	644.35	-.063
0.0	685.00	-.162		180.0	685.00	-.149		315.0	658.00	-.098
0.0	687.00	-.166		180.0	687.30	-.166		315.0	670.25	-.094
0.0	693.00	-.136		180.0	693.00	-.122		315.0	685.00	-.114
0.0	700.00	-.030		181.0	694.00	-.095		320.0	687.30	-.134
0.0	706.00	-.100		180.0	700.00	.036		315.0	693.00	-.071
22.5	693.00	-.119		180.0	706.00	.102		315.0	695.00	-.011
22.5	700.00	-.019		202.5	693.00	-.129		315.0	700.00	-.057
45.0	693.00	-.025		215.0	685.00	-.132		315.0	702.00	.103
45.0	700.00	-.013		215.0	687.30	-.156		315.0	706.00	-.121
45.0	706.00	-.027		225.0	520.00	.002		TCL	658.70	-.015
50.0	685.00	-.118		225.0	571.00	-.024		TCL	685.00	-.091
50.0	687.30	-.138		225.0	611.00	-.010		BCL	586.00	-.055
77.0	685.00	-.024		225.0	624.50	-.013		BCL	646.00	-.072
90.0	693.00	-.044		225.0	643.00	-.047		BCL	671.00	-.054
90.0	706.00	-.014		225.0	667.00	-.045				
135.0	685.00	-.094		225.0	693.00	-.113				
135.0	687.30	-.094		225.0	695.00	-.026				
135.0	693.00	-.030		225.0	700.00	.055				
135.0	695.00	-.015		225.0	702.00	.100				
135.0	700.00	-.033		225.0	706.00	.113				
135.0	702.00	-.047								
135.0	706.00	.057								

TABLE 3.—Continued

M = .605	AN CG = .93
Q = 100.9	W = 22746
ALPHA = 8.00	DA L = 4.00
BETA = -.57	DH L = -1.67
NPR = 2.95 −6	DR L = .41
RN (10⁻⁶) = 1.16	DSB = -3.11

AE L = 205	
AE R = 203	
PS 1 = 397.3	
PS 2 = 393.5	
H = 39868	
DEL P = .03	

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.229	157.5	693.00	-.126	247.5	685.00	-.144
0.0	620.00	-.179	157.5	700.00	.007	252.5	685.00	-.138
0.0	637.00	-.116	180.0	590.15	-.048	282.0	685.00	-.136
0.0	665.00	-.046	180.0	625.35	-.036	292.5	685.00	-.105
0.0	675.00	-.174	180.0	661.60	-.030	315.0	644.35	-.067
0.0	685.00	-.166	180.0	685.00	-.156	315.0	658.00	-.097
0.0	687.00	-.172	180.0	687.30	-.174	315.0	670.25	-.093
0.0	693.00	-.138	180.0	693.00	-.130	315.0	685.00	-.122
0.0	700.00	-.025	181.0	694.00	-.102	320.0	687.30	-.138
0.0	706.00	-.095	180.0	700.00	.027	315.0	693.00	-.072
22.5	693.00	-.120	180.0	706.00	-.091	315.0	695.00	-.016
22.5	700.00	-.015	202.5	693.00	-.138	315.0	700.00	.051
45.0	693.00	-.028	215.0	685.00	-.140	315.0	702.00	.101
45.0	700.00	.011	215.0	687.30	-.164	315.0	706.00	-.115
45.0	706.00	.021	225.0	620.00	-.006	TCL	658.70	-.022
50.0	635.00	-.118	225.0	571.00	-.024	TCL	685.00	-.093
50.0	687.30	-.144	225.0	611.00	.008	BCL	586.00	-.055
77.0	685.00	.017	225.0	624.50	-.014	BCL	646.00	-.075
90.0	693.00	.039	225.0	643.00	-.046	BCL	671.00	-.057
90.0	706.00	.011	225.0	667.00	-.046			
135.0	685.00	-.105	225.3	693.00	-.116			
135.0	687.30	-.107	225.0	695.00	-.028			
135.0	693.00	-.036	225.0	700.00	.051			
135.0	695.00	.017	225.0	702.00	.091			
135.0	700.00	.029	225.0	706.00	.103			
135.0	702.00	.039						
135.0	706.00	.045						

TABLE 3.—Continued

M = .592
Q = 97.5
ALPHA = 8.80
BETA = -.48
NPR = 3.27
RN (10^-6) = 1.14

AN CG = .97
W = 22731
OA L = 4.14
DH L = -1.87
DR L = .53
DS9 = -3.11

AE L = 205
AE R = 207
PS 1 = 400.8
PS 2 = 396.7
H = 39677
DEL P = .03

PHI	X	CP
0.0	596.00	-.226
0.0	620.00	-.175
0.0	637.00	-.111
0.0	665.00	-.041
0.0	675.00	-.168
0.0	685.00	-.157
0.0	687.00	-.163
0.0	693.00	-.132
0.0	700.00	-.031
0.0	706.00	-.099
22.5	693.00	-.111
22.5	700.00	-.019
45.0	693.00	-.024
45.0	700.00	-.010
45.0	706.00	-.025
50.0	685.00	-.113
50.0	687.30	-.130
77.0	685.00	-.019
90.0	693.00	-.041
90.0	706.00	-.016
135.0	685.00	-.108
135.0	687.30	-.107
135.0	693.00	-.042
135.0	695.00	-.012
135.0	700.00	-.030
135.0	702.00	-.044
135.0	706.00	.055

PHI	X	CP
157.5	693.00	-.134
157.5	700.00	.003
180.0	590.15	-.040
180.0	625.35	-.029
180.0	661.60	-.027
180.0	685.00	-.153
180.0	687.30	-.173
180.0	693.00	-.135
181.0	694.00	-.102
180.0	700.00	-.027
180.0	706.00	.101
202.5	693.00	-.135
215.0	685.00	-.129
215.0	687.30	-.154
225.0	520.00	.016
225.0	571.00	-.016
225.0	611.00	.017
225.0	624.50	-.003
225.0	643.00	-.037
225.0	667.00	-.037
225.0	693.00	-.105
225.0	695.00	-.021
225.0	700.00	.057
225.0	702.00	.097
225.0	706.00	.108

PHI	X	CP
247.5	685.00	-.141
252.5	685.00	-.129
282.0	685.00	-.131
292.5	685.00	-.100
315.0	644.35	-.062
315.0	658.00	-.093
315.0	670.25	-.091
315.0	685.00	-.114
320.0	687.30	-.132
315.0	693.00	-.069
315.0	695.00	-.015
315.0	700.00	-.056
315.0	702.00	-.104
315.0	706.00	-.124
TCL	658.70	-.022
TCL	685.00	-.092
BCL	586.00	-.049
BCL	646.00	-.068
BCL	671.00	-.052

TABLE 3.—Continued

M = .823
Q = 698.8
ALPHA = 1.03
BETA = -.30
NPR = 3.05
RN (10^{-6}) = 4.57

AN CG = 1.03
W = 23665
OA L = .77
OH L = -.73
OR L = .35
OSB = -.28

AE L = 205
AE R = 206
PS 1 = 1496.0
PS 2 = 1495.5
M = 9666
DEL P = -.14

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.240	157.5	693.00	-.082	247.5	685.00	-.155
0.0	620.00	-.179	157.5	700.00	.021	252.5	685.00	-.141
0.0	637.00	-.095	180.0	590.15	-.068	282.0	685.00	-.125
0.0	665.00	-.049	180.0	625.35	-.059	292.5	685.00	-.111
0.0	675.00	-.184	180.0	661.60	-.058	315.0	644.35	-.052
0.0	685.00	-.192	180.0	685.00	-.148	315.0	658.00	-.105
0.0	697.00	-.187	180.0	687.30	-.157	315.0	670.25	-.113
0.0	693.00	-.197	180.0	693.00	-.120	315.0	685.00	-.146
0.0	700.00	-.016	181.0	694.00	-.088	315.0	687.30	-.168
0.0	706.00	-.124	180.0	700.00	-.024	320.0	693.00	-.107
22.5	693.00	-.131	180.0	706.00	-.117	315.0	695.00	-.034
22.5	700.00	-.034	202.5	693.00	-.145	315.0	700.00	.039
45.0	693.00	-.017	215.0	685.00	-.153	315.0	702.00	.108
45.0	700.00	-.022	215.0	687.30	-.178	315.0	706.00	.126
45.0	706.00	-.031	225.0	520.00	-.086	TCL	658.70	-.018
50.0	685.00	-.132	225.0	571.00	-.058	TCL	685.00	-.092
50.0	687.30	-.156	225.0	611.00	-.018	BCL	586.00	-.085
77.0	685.00	-.049	225.0	624.50	-.051	BCL	646.00	-.087
90.0	693.00	-.065	225.0	643.00	-.093	BCL	671.00	-.047
90.0	706.00	-.026	225.0	567.00	-.082			
135.0	685.00	-.049	225.0	693.03	-.149			
135.0	687.30	-.045	225.0	695.00	-.058			
135.0	693.00	-.010	225.0	700.00	.036			
135.0	695.00	-.030	225.0	702.00	.097			
135.0	700.00	-.032	225.0	706.00	.136			
135.0	702.00	-.036						
135.0	706.00	-.041						

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TABLE 3.—Continued

M = .809
Q = 450.5
ALPHA = 1.46
BETA = -.31
NPR = 2.55
RN (10⁻⁶) = 3.24

AN CG = .97
W = 23242
DA L = .64
DH L = -.61
DR L = .66
DSB = -.32

AE L = 205
AE R = 205
PS 1 = 996.2
PS 2 = 994.0
H = 19762
DEL P = -.06

PHI	X	CP
0.0	596.00	-.241
0.0	620.00	-.189
0.0	637.00	-.109
0.0	665.00	-.052
0.0	675.00	-.187
0.0	685.00	-.196
0.0	687.00	-.196
0.0	693.00	-.191
0.0	700.00	-.017
0.0	706.00	-.108
22.5	693.00	-.125
22.5	700.00	-.023
45.0	693.00	-.021
45.0	700.00	.013
45.0	706.00	.024
50.0	685.00	-.125
50.0	687.30	-.149
77.0	685.00	-.040
90.0	693.00	.058
90.0	706.00	.016
135.0	685.00	-.056
135.0	687.30	-.055
135.0	693.00	.004
135.0	695.00	.020
135.0	700.00	.025
135.0	702.00	.031
135.0	706.00	.035

PHI	X	CP
157.5	693.00	-.088
157.5	700.00	.018
180.0	590.15	-.071
180.0	625.35	-.063
180.0	661.60	-.060
180.0	685.00	-.155
180.0	687.30	-.167
180.0	693.00	-.122
181.0	694.00	-.091
180.0	700.00	.022
180.0	706.00	-.100
202.5	693.00	-.148
215.0	685.00	-.156
215.0	687.30	-.186
225.0	520.00	-.080
225.0	571.00	-.058
225.0	611.00	-.024
225.0	624.50	-.054
225.0	643.00	-.096
225.0	667.00	-.084
225.0	693.00	-.149
225.0	695.00	-.058
225.0	700.00	.035
225.0	702.00	.086
225.0	706.00	.117

PHI	X	CP
247.5	685.00	-.159
252.5	685.00	-.146
282.0	685.00	-.132
292.5	685.00	-.115
315.0	644.35	-.058
315.0	658.00	-.109
315.0	670.25	-.116
315.0	685.00	-.148
315.0	687.30	-.172
320.0	693.00	-.103
315.0	695.00	-.030
315.0	700.00	.042
315.0	702.00	.095
315.0	706.00	-.112
TCL	658.70	-.013
TCL	685.00	-.094
BCL	586.00	-.088
BCL	646.00	-.090
BCL	671.00	-.052

TABLE 3.—Continued

M = .900 AN CG = .95 AE L = 205
Q = 809.5 W = 23486 AE R = 205
ALPHA = .85 DA L = .93 PS 1 = 1454.9
BETA = -.35 DH L = -.92 PS 2 = 1455.5
NPR = 3.06 DR L = -.96 H = 10495
RN (10⁻⁶) = 4.84 DSB = -.26 DEL P = -.17

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.300	157.5	693.00	-.054	247.5	685.00	-.165
0.0	620.00	-.270	157.5	700.00	-.040	252.5	685.00	-.147
0.0	637.00	-.082	180.0	590.15	-.068	282.0	685.00	-.123
0.0	665.00	-.039	180.0	625.35	-.055	292.5	685.00	-.112
0.0	675.00	-.188	180.0	661.60	-.061	315.0	644.35	-.037
0.0	685.00	-.195	180.0	685.00	-.139	315.0	658.00	-.099
0.0	687.00	-.183	180.0	687.30	-.142	315.0	670.25	-.114
0.0	693.00	-.194	180.0	693.00	-.100	315.0	685.00	-.148
0.0	700.00	-.031	181.0	694.00	-.065	320.0	687.30	-.167
0.0	706.00	-.135	180.0	700.00	-.045	315.0	693.00	-.102
22.5	693.00	-.112	180.0	706.00	-.126	315.0	695.00	-.020
22.5	700.00	-.052	202.5	693.00	-.136	315.0	700.00	-.058
45.0	693.00	-.002	215.0	685.00	-.160	315.0	702.00	-.120
45.0	700.00	-.036	215.0	687.30	-.186	315.0	706.00	-.144
45.0	706.00	-.040	225.0	520.00	-.102	TCL	658.70	-.003
50.0	685.00	-.123	225.0	571.00	-.055	TCL	685.00	-.078
50.0	687.30	-.144	225.0	611.00	-.007	BCL	586.00	-.062
77.0	685.00	-.065	225.0	624.50	-.044	BCL	646.00	-.087
90.0	693.00	-.080	225.0	643.00	-.100	BCL	671.00	-.041
90.0	706.00	-.034	225.0	667.00	-.094			
135.0	685.00	-.024	225.0	693.00	-.145			
135.0	687.30	-.017	225.0	695.00	-.037			
135.0	693.00	-.041	225.0	700.00	-.060			
135.0	695.00	-.045	225.0	702.00	.122			
135.0	700.00	-.044	225.0	706.00	.156			
135.0	702.00	-.044						
135.0	706.00	-.043						

TABLE 3.—Continued

M =	.908		AN CG =	.95		AE L =	205
Q =	606.7		W =	20335		AE R =	205
ALPHA =	.94		OA L =	15.35		PS 1 =	1071.5
EETA =	-.40		OH L =	-.88		PS 2 =	1071.1
NFR =	3.32 -6		OP L =	-.15		M =	18136
RN (10) =	3.81		DSB =	-.32		DEL P =	-.10

PHI	X	CP		PHI	X	CP		FHI	X	CP
0.0	596.00	-.330		157.5	693.00	-.050		247.5	685.00	-.164
0.0	620.00	-.310		157.5	700.00	-.046		252.5	685.00	-.145
0.0	637.00	-.077		180.0	590.15	-.066		282.0	685.00	-.117
0.0	665.00	-.038		180.0	625.35	-.055		292.5	685.00	-.107
0.0	675.00	-.175		180.0	661.50	-.062		315.0	644.35	-.034
0.0	685.00	-.192		180.0	685.00	-.138		315.0	658.00	-.096
0.0	687.00	-.183		180.0	687.30	-.419		315.0	670.25	-.111
0.0	693.00	-.185		180.0	693.00	-.094		315.0	685.00	-.144
0.0	700.00	.045		181.0	694.00	-.060		320.0	687.30	-.165
0.0	706.00	-.142		180.0	700.00	-.053		315.0	693.00	-.093
22.5	693.00	-.099		180.0	706.00	-.134		315.0	695.00	-.009
22.5	700.00	.057		202.5	693.00	-.133		315.0	700.00	.071
45.0	693.00	.007		215.0	685.00	-.164		315.0	702.00	.128
45.0	700.00	.041		215.0	687.30	-.186		315.0	706.70	.151
45.0	706.00	.041		225.0	520.00	-.104		TCL	658.70	.011
50.0	685.00	-.114		225.0	571.00	-.059		TCL	685.00	-.072
50.0	687.30	-.134		225.0	611.00	-.002		BCL	586.00	-.081
77.0	685.00	.068		225.0	624.50	-.042		BCL	646.00	-.085
90.0	693.00	.083		225.0	643.00	-.098		BCL	671.00	-.034
90.0	706.00	.037		225.0	667.00	-.094				
135.0	685.00	-.014		225.0	693.00	-.134				
135.0	687.30	.069		225.0	695.00	-.023				
135.0	693.00	.051		225.0	700.00	.074				
135.0	695.00	.050		225.0	702.00	.132				
135.0	700.00	.048		225.0	706.00	.161				
135.0	702.00	.046								
135.0	706.00	.044								

TABLE 3.—Continued

M = .902	AN CG = .93	AE L = 205
Q = 391.9	W = 22885	AE R = 205
ALP4A = 1.43	DA L = .61	PS 1 = 701.1
BETA = -.57	DH L = -.94	PS 2 = 698.3
NFR = 3.14 -6	DR L = .12	H = 27997
RN (10) = 2.59	DSB = -.29	DEL P = -.03

PHI	X	CP
0.0	596.00	-.297
0.0	620.00	-.336
0.0	637.00	-.106
0.0	665.00	-.042
0.0	675.00	-.183
0.0	685.00	-.195
0.0	687.00	-.190
0.0	693.00	-.173
0.0	700.00	.042
0.0	706.00	-.121
22.5	693.00	-.096
22.5	700.00	-.039
45.0	693.00	-.001
45.0	700.00	-.026
45.0	706.00	.030
50.0	685.00	-.112
50.0	687.30	-.132
77.0	685.00	.051
90.0	693.00	-.068
90.0	706.00	-.026
135.0	685.00	-.026
135.0	687.30	-.022
135.0	693.00	.039
135.0	695.00	.038
135.0	700.00	.036
135.0	702.00	.034
135.0	706.00	.032

PHI	X	CP
157.5	693.00	-.051
157.5	700.00	.033
180.0	590.15	-.075
180.0	625.35	-.064
180.0	661.60	-.069
180.0	685.00	-.144
180.0	687.30	-.142
180.0	693.00	-.089
181.0	694.00	-.059
180.0	700.00	.045
180.0	706.00	-.106
202.5	693.00	-.130
215.0	685.00	-.164
215.0	687.30	-.194
225.0	520.00	-.100
225.0	571.00	-.058
225.0	611.00	-.017
225.0	624.50	-.053
225.0	643.00	-.111
225.0	667.00	-.102
225.0	693.00	-.127
225.0	695.00	-.023
225.3	700.00	.064
225.0	702.00	.115
225.0	706.00	.138

PHI	X	CP
247.5	685.00	-.168
252.5	685.00	-.151
282.0	685.00	-.122
292.5	685.00	-.113
315.0	644.35	-.045
315.0	658.00	-.103
315.0	670.25	-.117
315.0	685.00	-.146
320.0	687.30	-.162
315.0	693.00	-.083
315.0	695.00	-.008
315.0	700.00	-.060
315.0	702.00	-.106
315.0	706.00	-.131
TCL	658.70	.002
TCL	685.00	-.080
BCL	586.00	-.088
BCL	646.00	-.095
BCL	571.00	-.045

TABLE 3.—Continued

M = .901

Q = 399.4

ALPHA = 1.38

BETA = -.47

NPR = 3.42

RN (10^{-6}) = 2.81

AN CG = .97

M = 21611

DA L = 3.93

DH L = -.88

DR L = -.22

DSB = -3.20

AE L = 205

AE R = 205

PS 1 = 716.0

PS 2 = 713.2

M = 27525

DEL P = -.03

PHI	X	CP
0.0	596.00	-.315
0.0	620.00	-.302
0.0	637.00	-.085
0.0	665.00	-.038
0.0	675.00	-.174
0.0	685.00	-.192
0.0	687.00	-.188
0.0	693.00	-.174
0.0	700.00	-.048
0.0	706.00	.136
22.5	693.00	-.099
22.5	700.00	.047
45.0	693.00	-.001
45.0	700.00	.030
45.0	706.00	.036
50.0	685.00	-.112
50.0	687.30	-.135
77.0	685.00	-.054
90.0	693.00	.073
90.0	706.00	.029
135.0	685.00	-.018
135.0	687.30	-.012
135.0	693.00	.046
135.0	695.00	.042
135.0	700.00	.041
135.0	702.00	.039
135.0	706.00	.038

PHI	X	CP
157.5	693.00	-.048
157.5	700.00	.041
180.0	590.15	-.069
180.0	625.35	-.059
180.0	661.60	-.062
180.0	685.00	-.137
180.0	687.30	-.140
180.0	693.00	-.085
180.0	694.00	-.055
181.0	700.00	.055
180.0	706.00	-.120
202.5	693.00	-.128
215.0	685.00	-.157
215.0	687.30	-.185
225.0	620.00	-.099
225.0	571.00	-.059
225.0	611.00	-.008
225.0	624.50	-.046
225.0	643.00	-.101
225.0	667.00	-.095
225.0	693.00	-.123
225.0	695.00	-.017
225.0	700.00	.073
225.0	702.00	.128
225.0	706.00	.152

PHI	X	CP
247.5	685.00	-.160
252.5	685.00	-.142
282.0	685.00	-.113
292.5	685.00	-.105
315.0	644.35	-.038
315.0	658.00	-.099
315.0	670.25	-.112
315.0	685.00	-.141
320.0	687.30	-.160
315.0	693.00	-.077
315.0	695.00	-.003
315.0	700.00	.075
315.0	702.00	.121
315.0	706.00	.144
TCL	658.70	-.007
TCL	645.00	-.073
BCL	586.00	-.082
BCL	646.00	-.088
BCL	671.00	-.037

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TABLE 3.—Continued

M = .925

Q = 213.7

ALPHA = 2.58

BETA = -.59

NFR = 4.15 (-6)

RN (10) = 1.60

AN CG = .94

W = 22498

DA L = 16.28

DH L = -1.75

DR L = .10

DSB = -.30

AE L = 205

AE R = 181

PS 1 = 364.6

PS 2 = 361.4

H = 41921

DEL P = .02

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.250	157.5	693.00	-.042	247.5	685.00	-.160
0.0	620.00	-.380	157.5	700.00	-.033	252.5	685.00	-.139
0.0	637.00	-.152	180.0	590.15	-.080	282.0	685.00	-.122
0.0	665.00	-.037	180.0	625.35	-.077	292.5	685.00	-.110
0.0	675.00	-.160	180.0	661.60	-.087	315.0	644.35	-.055
0.0	685.00	-.176	180.0	685.00	-.148	315.0	658.00	-.094
0.0	687.00	-.173	180.0	687.30	0.000	315.0	670.25	-.105
0.0	693.00	-.127	180.0	693.00	-.067	315.0	685.00	-.131
0.0	700.00	.054	181.0	694.00	-.044	320.0	687.30	-.144
0.0	706.00	.118	180.0	700.00	-.048	315.0	693.00	-.065
22.5	693.00	-.077	180.0	706.00	-.103	315.0	695.00	-.003
22.5	700.00	.036	202.5	693.00	-.102	315.0	700.00	-.059
45.0	693.00	-.071	215.0	685.00	-.120	315.0	702.00	-.109
45.0	700.00	.023	215.0	687.30	-.191	315.0	706.00	.131
45.0	706.00	.028	225.0	520.00	-.132	TCL	658.70	-.005
50.0	685.00	-.096	225.0	571.00	-.055	TCL	685.00	-.072
50.0	687.30	-.115	225.0	611.00	-.025	BCL	586.00	-.091
77.0	685.00	.035	225.0	624.50	-.066	BCL	646.00	-.114
90.0	693.00	.057	225.0	643.00	-.133	BCL	671.00	-.052
90.0	706.00	.022	225.0	667.00	-.122			
135.0	645.00	-.030	225.0	693.00	-.082			
135.0	687.30	-.025	225.0	695.00	.013			
135.0	693.00	.034	225.0	700.00	.072			
135.0	695.00	.029	225.0	702.00	.111			
135.0	700.00	.029	225.0	706.00	.124			
135.0	702.00	.028						
135.0	706.00	.026						

TABLE 3.—Continued

M = .900
Q = 199.8
ALPHA = 2.73
BETA = -.73
NPR = 3.75
RN (10^{-6}) = 1.53

AN CG = .98
W = 22317
DA L = 4.36
DH L = -1.34
OR L = .03
DSB = -3.12

AE L = 205
AE R = 206
PS 1 = 359.0
PS 2 = 355.9
H = 42205
DEL P = .03

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.321	157.5	693.00	-.047	247.5	685.00	-.155
0.0	620.00	-.346	157.5	700.00	.042	252.5	685.00	-.137
0.0	637.00	-.095	180.0	690.15	-.070	282.0	685.00	-.111
0.0	655.00	-.029	180.0	625.35	-.062	292.5	685.00	-.099
0.0	675.00	-.157	180.0	661.60	-.064	315.0	644.35	-.034
0.0	685.00	-.171	180.0	685.00	-.141	315.0	658.00	-.088
0.0	687.00	-.171	180.0	687.30	-.143	315.0	670.25	-.100
0.0	693.00	-.137	180.0	693.00	-.075	315.0	685.00	-.124
0.0	700.00	.058	181.0	694.00	-.046	320.0	687.30	-.136
0.0	706.00	-.127	180.0	700.00	.058	315.0	693.00	-.053
22.5	693.00	-.076	202.5	706.00	-.113	315.0	695.00	-.015
22.5	700.00	-.042	215.0	685.00	-.112	315.0	700.00	-.074
45.0	693.00	-.012	215.0	687.30	-.155	315.0	702.00	.117
45.0	700.00	-.032	225.0	520.00	-.181	315.0	706.00	-.135
45.0	706.00	-.034	225.0	571.00	-.073	TCL	658.70	-.019
50.0	685.00	-.089	225.0	611.00	-.047	TCL	685.00	-.064
50.0	687.30	-.111	225.0	624.50	-.009	BCL	586.00	-.077
77.0	685.00	.050	225.0	643.20	-.051	BCL	646.00	-.091
90.0	693.00	.067	225.0	667.00	-.108	BCL	671.00	-.042
90.0	706.00	-.029	225.0	693.00	-.098			
135.0	685.00	-.027	225.0	695.00	-.035			
135.0	687.30	-.022	225.0	700.00	.005			
135.0	693.00	-.041	225.0	702.80	.075			
135.0	695.00	-.040	225.0	706.00	.123			
135.0	700.00	-.038	225.0		.142			
135.0	702.00	.040						
135.0	706.00	.040						

TABLE 3.—Continued

M = .906
Q = 138.6
ALPHA = 3.55
BETA = -.64
NPR = 5.67
RN (10^{-6}) = 1.09

AN CG = .92
W = 21806
DA L = 3.68
OH L = -2.11
DR L = -.34
DSB = -3.14

AE L = 227
AE R = 225
PS 1 = 246.0
PS 2 = 242.7
H = 50080
DEL P = .04

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.316	157.5	693.00	-.036	247.5	685.00	-.125
0.0	620.00	-.335	157.5	700.00	.055	252.5	685.00	-.100
0.0	637.00	-.093	180.0	590.15	-.052	282.0	685.00	-.085
0.0	665.00	-.019	180.0	625.35	-.060	292.5	685.00	-.073
0.0	675.00	-.130	180.0	661.60	-.063	315.0	644.35	-.029
0.0	685.00	-.140	180.0	685.00	-.131	315.0	658.00	-.073
0.0	687.00	-.136	180.0	687.30	-.127	315.0	670.25	-.080
0.0	693.00	-.111	180.0	693.00	-.056	315.0	685.00	-.092
0.0	700.00	.072	181.0	694.00	-.027	320.0	687.30	-.100
0.0	706.00	-.148	180.0	700.00	-.076	315.0	693.00	-.025
22.5	693.00	-.076	180.0	706.00	.134	315.0	695.00	.033
22.5	700.00	.052	202.5	693.00	-.082	315.0	700.00	.089
45.0	693.00	.012	215.0	685.00	-.133	315.0	702.00	-.133
45.0	700.00	.036	215.0	687.30	-.145	315.0	706.00	-.156
45.0	706.00	.046	225.0	520.00	-.066	TCL	658.70	-.017
50.0	685.00	-.078	225.0	571.00	-.037	TCL	685.00	-.055
50.0	687.30	-.097	225.0	611.00	-.007	BCL	586.00	-.073
77.0	685.00	.047	225.0	624.50	-.052	BCL	646.00	-.099
90.0	693.00	.065	225.0	643.00	-.112	BCL	671.00	-.037
90.0	706.00	.033	225.0	667.00	-.097			
135.0	685.00	-.019	225.0	693.00	-.056			
135.0	687.30	-.018	225.0	695.00	.035			
135.0	693.00	.040	225.0	700.00	.098			
135.0	695.00	.043	225.0	702.00	.137			
135.0	700.00	.041	225.0	706.00	.154			
135.0	702.00	.047						
135.0	706.00	.056						

TABLE 3.—Continued

M = .887

Q = 134.7

ALPHA = 3.96

BETA = -.93

NPR = 3.77

RN (10^-6) = 1.08

AN CG = .94

W = 22095

DA L = 4.44

DH L = -1.56

DR L = -.05

OSB = -3.12

AE L = 204

AE F = 204

PS 1 = 248.7

PS 2 = 245.9

H = 49825

DEL P = .03

PHI	X	CP
0.0	596.00	-.341
0.0	620.00	-.272
0.0	637.00	-.090
0.0	665.00	-.029
0.0	675.00	-.160
0.0	685.00	-.163
0.0	687.00	-.164
0.0	693.00	-.121
0.0	700.00	.057
0.0	706.00	.121
22.5	693.00	-.070
22.5	700.00	-.041
45.0	693.00	.012
45.0	700.00	.031
45.0	706.00	.034
50.0	685.00	-.090
50.0	687.30	-.109
77.0	685.00	.042
90.0	693.00	.063
90.0	706.00	.032
135.0	685.00	-.029
135.0	687.30	-.026
135.0	693.00	.042
135.0	695.00	.041
135.0	700.00	.039
135.0	702.00	.038
135.0	706.00	.035

PHI	X	CP
157.5	693.00	-.045
157.5	700.00	.042
180.0	590.15	-.063
180.0	625.35	-.058
180.0	661.60	-.061
180.0	685.00	-.143
180.0	687.30	-.148
180.0	693.00	-.077
181.0	694.00	-.051
180.0	700.00	.052
180.0	706.00	-.112
202.5	693.00	-.111
215.0	685.00	-.152
215.0	687.30	-.176
225.0	520.00	-.048
225.0	571.00	-.038
225.0	611.00	-.009
225.0	624.50	-.053
225.0	643.00	-.107
225.0	667.00	-.092
225.0	693.00	.092
225.0	695.00	.003
225.0	700.00	.067
225.0	702.00	.115
225.0	706.00	.134

PHI	X	CP
247.5	685.00	-.153
252.5	685.00	-.138
282.0	685.00	-.114
292.5	685.00	-.098
315.0	644.35	-.038
315.0	658.00	-.089
315.0	670.25	-.099
315.0	685.00	-.118
320.0	687.30	-.131
315.0	693.00	-.049
315.0	695.00	.015
315.0	700.00	.070
315.0	702.00	.111
TCL	706.00	.132
TCL	658.70	.016
BCL	685.00	-.066
BCL	586.00	-.072
BCL	646.00	-.090
BCL	671.00	-.042

TABLE 3.—Continued

M = 1.185

Q = 783.8

ALPHA = .68

BETA = -.34

NPR = 5.92

RN (10^{-6}) = 4.07

AN CG = .89

W = 20584

DA L = 4.07

DH L = .22

DR L = -.21

DSB = -3.20

AE L = 355

AE R = 349

PS 1 = 798.1

PS 2 = 794.3

H = 24642

DEL P = .01

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.088	157.5	693.00	-.137	247.5	685.00	-.182
0.0	620.00	-.165	157.5	700.00	-.391	252.5	685.00	-.182
0.0	637.00	-.203	180.0	590.15	-.319	282.0	685.00	-.252
0.0	665.00	-.109	180.0	625.35	-.133	292.5	685.00	-.252
0.0	675.00	-.184	180.0	561.60	-.065	315.0	644.35	-.087
0.0	685.00	-.229	180.0	685.00	-.163	315.0	658.00	-.167
0.0	687.00	-.237	180.0	687.30	-.166	315.0	670.25	-.133
0.0	693.00	-.301	180.0	693.00	-.122	315.0	685.00	-.248
0.0	700.00	-.379	181.0	694.00	-.160	320.0	687.30	-.264
0.0	706.00	-.041	180.0	700.00	-.303	315.0	693.00	-.212
22.5	693.00	-.216	180.0	706.00	-.026	315.0	695.00	-.307
22.5	700.00	-.406	202.5	693.00	-.119	315.0	700.00	-.303
45.0	693.00	-.311	215.0	685.00	-.155	315.0	702.00	-.072
45.0	700.00	-.151	215.0	687.30	-.202	315.0	706.00	-.015
45.0	706.00	-.051	225.0	520.00	-.003	TCL	658.70	-.259
50.0	685.00	-.220	225.0	571.00	-.041	TCL	685.00	-.216
50.0	687.30	-.298	225.0	611.00	-.128	BCL	506.00	-.346
77.0	685.00	-.114	225.0	624.50	-.071	BCL	646.00	-.083
90.0	693.00	-.078	225.0	643.00	-.074	BCL	671.00	-.047
90.0	706.00	-.104	225.0	667.00	-.123			
135.0	685.00	-.174	225.0	693.00	-.141			
135.0	687.30	-.117	225.0	695.00	-.240			
135.0	693.00	-.183	225.0	700.00	-.320			
135.0	695.00	-.278	225.0	702.00	-.085			
135.0	700.00	-.255	225.0	706.00	.002			
135.0	702.00	-.056						
135.0	706.00	.005						

TABLE 3.—Continued

M = 1.181
Q = 736.3

ALPHA = .84
BETA = -.28

NPR = 6.26
RN (10^-6) = 3.90

AN CG = .92
W = 21483

DA L = 9.05
DH L = .00
DR L = -.76
DSB = -.28

AE L = 296
AE R = 327

PS 1 = 754.1
PS 2 = 750.8

H = 25940

DEL P = .01

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.089	157.5	693.00	-.231	247.5	685.00	-.183
0.0	620.00	-.171	157.5	700.00	-.334	252.5	685.00	-.184
0.0	637.00	-.207	180.0	590.15	-.154	282.0	685.00	-.272
0.0	665.00	-.107	180.0	625.35	-.130	292.5	685.00	-.261
0.0	675.00	-.189	180.0	661.60	-.066	315.0	644.35	-.099
0.0	685.00	-.231	180.0	685.00	-.167	315.0	658.00	-.172
0.0	687.00	-.244	180.0	687.30	-.205	315.0	670.25	-.135
0.0	693.00	-.390	180.0	693.00	-.223	315.0	685.00	-.247
0.0	700.00	-.159	181.0	694.00	-.254	320.0	687.30	-.272
0.0	706.00	-.055	180.0	700.00	-.327	315.0	693.00	-.320
22.5	693.00	-.363	180.0	706.00	-.044	315.0	695.00	-.375
22.5	700.00	-.160	202.5	693.00	-.214	315.0	700.00	-.161
45.0	693.00	-.357	215.0	685.00	-.156	315.0	702.00	-.085
45.0	700.00	-.147	215.0	687.30	-.209	315.0	706.00	-.045
45.0	706.00	-.090	225.0	520.00	-.004	TCL	658.70	-.249
50.0	685.00	-.221	225.0	571.00	-.041	TCL	685.00	-.216
50.0	687.30	-.295	225.0	611.00	-.129	BCL	586.00	-.212
77.0	685.00	-.117	225.0	624.50	-.068	BCL	646.00	-.081
90.0	693.00	-.083	225.0	643.00	-.074	BCL	671.00	-.049
90.0	706.00	-.123	225.0	667.00	-.122			
135.0	685.00	-.181	225.0	693.00	-.253			
135.0	687.30	-.149	225.0	695.00	-.330			
135.0	693.00	-.264	225.0	700.00	-.288			
135.0	695.00	-.282	225.0	702.00	-.064			
135.0	700.00	-.144	225.0	706.00	-.032			
135.0	702.00	-.060						
135.0	706.00	-.027						

TABLE 3.—Continued

M = 1.166

Q = 585.1

ALPHA = 1.50

BETA = -.36

NPR = 6.66 -6

RN (10) = 3.26

AN CG = .96

W = 22679

DA L = 13.91

DH L = -.61

DR L = -.72

DSB = -.28

AE L = 275

AE R = 268

PS 1 = 615.8

PS 2 = 612.2

H = 30456

DEL P = -.00

PHI	X	CP
0.0	596.00	-.137
0.0	620.00	-.191
0.0	637.00	-.232
0.0	665.00	-.073
0.0	675.00	-.184
0.0	685.00	-.244
0.0	687.00	-.263
0.0	693.00	-.433
0.0	700.00	-.130
0.0	706.00	-.056
22.5	693.00	-.406
22.5	700.00	-.140
45.0	693.00	-.307
45.0	700.00	-.151
45.0	706.00	-.102
50.0	685.00	-.237
50.0	687.30	-.307
77.0	685.00	-.106
90.0	693.00	-.080
90.0	706.00	-.122
135.0	685.00	-.188
135.0	687.30	-.157
135.0	693.00	-.279
135.0	695.00	-.226
135.0	700.00	-.123
135.0	702.00	-.073
135.0	706.00	-.047

PHI	X	CP
157.5	693.00	-.265
157.5	700.00	-.211
180.0	590.15	-.195
180.0	625.35	-.127
180.0	661.60	-.066
180.0	685.00	-.177
180.0	687.30	-.215
180.0	693.00	-.259
181.0	694.00	-.290
180.0	700.00	-.203
180.0	706.00	-.044
202.5	693.00	-.252
215.0	685.00	-.167
215.0	687.30	-.221
225.0	520.00	-.011
225.0	571.00	-.060
225.0	611.00	-.123
225.0	624.50	-.052
225.0	643.00	-.071
225.0	667.00	-.121
225.0	693.00	-.307
225.0	695.00	-.381
225.0	700.00	-.153
225.0	702.00	-.066
225.0	706.00	-.041

PHI	X	CP
247.5	685.00	-.197
252.5	685.00	-.201
282.0	685.00	-.288
292.5	685.00	-.265
315.0	644.35	-.112
315.0	658.00	-.174
315.0	670.25	-.138
315.0	685.00	-.254
320.0	687.30	-.279
315.0	693.00	-.363
315.0	695.00	-.358
315.0	700.00	-.127
315.0	702.00	-.088
315.0	706.00	-.060
TCL	658.70	-.225
TCL	685.00	-.201
BCL	586.00	-.189
BCL	646.00	-.081
BCL	671.00	-.056

TABLE 3.—Continued

M = 1.168	AN CG = .88	AE L = 218
Q = 385.9	W = 21248	AE R = 240
ALPHA = 2.07	DA L = 16.96	PS 1 = 404.4
BETA = -.58	DH L = -1.25	PS 2 = 401.5
NPR = 7.54	DR L = -.25	W = 39347
RN (10^-6) = 2.32	DSB = -.32	DEL P = .03

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.116	157.5	693.00	-.347	247.5	685.00	-.208
0.0	620.00	-.201	157.5	700.00	-.136	252.5	685.00	-.214
0.0	637.00	-.234	180.0	590.15	-.147	282.0	685.00	-.295
0.0	665.00	-.081	180.0	625.35	-.124	292.5	685.00	-.265
0.0	675.00	-.190	180.0	661.60	-.073	315.0	644.35	-.105
0.0	685.00	-.237	180.0	685.00	-.180	315.0	658.00	-.168
0.0	687.00	-.256	180.0	687.30	-.237	315.0	670.25	-.137
0.0	693.00	-.406	180.0	693.00	-.346	315.0	685.00	-.244
0.0	700.00	-.122	181.0	694.00	-.381	315.0	687.30	-.276
0.0	706.00	-.073	180.0	700.00	-.147	320.0	693.00	-.369
22.5	693.00	-.459	202.5	706.00	-.049	315.0	695.00	-.176
22.5	700.00	-.133	215.0	693.00	-.342	315.0	700.00	-.136
45.0	693.00	-.228	215.0	685.00	-.170	315.0	702.00	-.117
45.0	700.00	-.143	225.0	687.30	-.223	315.0	706.00	-.097
45.0	706.00	-.103	225.0	620.00	-.002	TCL	658.70	-.195
50.0	685.00	-.224	225.0	571.00	-.062	TCL	685.00	-.201
50.0	687.30	-.291	225.0	611.00	-.108	BCL	586.00	-.160
77.0	685.00	-.095	225.0	624.50	-.050	BCL	646.00	-.085
90.0	693.00	-.072	225.0	643.00	-.070	BCL	671.00	-.058
90.0	705.00	-.116	225.0	667.00	-.122			
135.0	685.00	-.185	225.0	693.00	-.419			
135.0	687.30	-.168	225.0	695.00	-.204			
135.0	693.00	-.254	225.0	700.00	-.127			
135.0	695.00	-.159	225.0	702.00	-.094			
135.0	700.00	-.119	225.0	706.00	-.084			
135.0	702.00	-.097						
135.0	706.00	-.079						

TABLE 3.—Continued

M = 1.250
Q = 266.3
ALPHA = 2.85
BETA = -.54
NPR = 8.08
$^{-6}$
RN (10) = 1.54

AN CG = .95
W = 21094
DA L = 3.95
DH L = -2.78
DR L = -.09
DSB = -3.17

AE L = 292
AE R = 292
PS 1 = 243.6
PS 2 = 240.5
H = 49891
DEL P = .07

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.085	157.5	693.00	-.219	247.5	685.00	-.201
0.0	620.00	-.180	157.5	700.00	-.136	252.5	685.00	-.212
0.0	637.00	-.220	180.0	590.15	-.094	282.0	685.00	-.279
0.0	665.00	-.105	180.0	625.35	-.103	292.5	685.00	-.239
0.0	675.00	-.221	180.0	661.60	-.085	315.0	544.35	-.084
0.0	685.00	-.185	180.0	685.00	-.158	315.0	558.00	-.153
0.0	687.00	-.193	180.0	687.30	-.216	315.0	670.25	-.134
0.0	693.00	-.307	180.0	693.00	-.229	315.0	685.80	-.200
0.0	700.00	-.074	181.0	694.00	-.259	320.0	687.30	-.227
0.0	706.00	-.030	180.0	700.00	-.114	315.0	693.00	-.271
22.5	693.00	-.334	180.0	706.00	-.017	315.0	695.00	-.224
22.5	700.00	-.065	202.5	693.00	-.231	315.0	700.00	-.071
45.0	693.00	-.201	215.0	685.00	-.155	315.0	702.00	-.024
45.0	700.00	-.091	215.0	687.30	-.198	315.0	706.00	-.006
45.0	706.00	-.044	225.0	520.00	-.062	TCL	658.70	-.126
50.0	685.00	-.184	225.0	571.00	-.005	TCL	685.00	-.266
50.0	687.30	-.243	225.0	611.00	-.081	BCL	586.00	-.135
77.0	685.00	-.070	225.0	624.50	-.063	BCL	546.00	-.116
90.0	693.00	-.045	225.0	643.00	-.056	BCL	571.00	-.054
90.0	706.00	-.070	225.0	667.00	-.118			
135.0	685.00	-.151	225.0	693.00	-.286			
135.0	687.30	-.142	225.0	695.00	-.292			
135.0	693.00	-.191	225.0	700.00	-.090			
135.0	695.00	-.157	225.0	702.00	-.044			
135.0	700.00	-.078	225.0	706.00	-.023			
135.0	702.00	-.036						
135.0	706.00	-.016						

TABLE 3.—Continued

M = 1.472	AN CG = .91	AE L = 300
Q = 597.0	W = 21754	AE R = 298
ALPHA = 1.25	DA L = 3.26	PS 1 = 393.9
BETA = -.62	DH L = .10	PS 2 = 390.0
NPR = 8.92	DR L = .99	M = 39902
RN (10^-6) = 2.82	DSB = -3.06	DEL P = .10

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.032	157.5	693.00	-.130	247.5	685.00	-.163
0.0	620.00	-.089	157.5	700.00	-.286	252.5	685.00	-.170
0.0	637.00	-.123	180.0	590.15	-.087	282.5	685.00	-.219
0.0	665.00	-.090	180.0	625.35	-.079	292.5	685.00	-.202
0.0	675.00	-.206	180.0	661.60	-.074	315.0	644.35	-.055
0.0	685.00	-.206	180.0	685.00	-.108	315.0	658.00	-.095
0.0	687.00	-.218	180.0	687.30	-.198	315.0	670.25	-.106
0.0	693.00	-.247	180.0	693.00	-.142	315.0	685.00	-.179
0.0	700.00	-.087	181.0	694.00	-.170	320.0	687.30	-.215
0.0	706.00	-.032	180.0	700.00	-.251	315.0	693.00	-.228
22.5	693.00	-.211	180.0	706.00	-.008	315.0	695.00	-.254
22.5	700.00	-.091	202.5	693.00	-.154	315.0	700.00	-.090
45.0	693.00	-.252	215.0	685.00	-.130	315.0	702.00	-.055
45.0	700.00	-.076	215.0	687.30	-.155	315.0	706.00	-.031
45.0	706.00	-.041	225.0	520.00	-.009	TCL	658.70	-.156
50.0	685.00	-.111	225.0	571.00	-.075	TCL	685.00	-.158
50.0	687.30	-.170	225.0	611.00	-.080	BCL	586.00	-.073
77.0	685.00	-.054	225.0	624.50	-.070	BCL	646.00	-.119
90.0	693.00	-.034	225.0	643.00	-.033	BCL	671.00	-.018
90.0	706.00	-.061	225.0	667.00	-.098			
135.0	685.00	-.094	225.0	693.00	-.200			
135.0	687.30	-.100	225.0	695.00	-.250			
135.0	693.00	-.161	225.0	700.00	-.106			
135.0	695.00	-.190	225.0	702.00	-.029			
135.0	700.00	-.092	225.0	706.00	-.009			
135.0	702.00	-.019						
135.0	706.00	.003						

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TABLE 3.—Continued

M = 1.580
Q = 626.8
ALPHA = 1.38
BETA = -.62
NPR = 9.45
RN (10^{-6}) = 2.77

AN CG = .88
W = 22061
DA L = 4.35
OM L = .31
DR L = 1.26
DSB = -3.05

AE L = 322
AE R = 35 2
PS 1 = 359.0
PS 2 = 355.1
M = 41828
DEL P = .11

PHI	X	CP
0.0	596.00	-.022
0.0	620.00	-.084
0.0	637.00	-.108
0.0	665.00	-.061
0.0	675.00	-.174
0.0	685.00	-.177
0.0	687.00	-.191
0.0	693.00	-.235
0.0	700.00	-.079
0.0	706.00	-.017
22.5	693.00	-.184
22.5	700.00	-.060
45.0	693.00	-.172
45.0	700.00	-.032
45.0	706.00	-.020
50.0	685.00	-.105
50.0	687.30	-.147
77.0	685.00	-.019
90.0	693.00	-.005
90.0	706.00	-.021
135.0	685.00	-.072
135.0	687.30	-.082
135.0	693.00	-.101
135.0	695.00	-.133
135.0	700.00	-.073
135.0	702.00	.005
135.0	706.00	.033

PHI	X	CP
157.5	693.00	-.090
157.5	700.00	-.232
180.0	590.15	-.078
180.0	625.35	-.088
180.0	661.60	-.072
180.0	685.00	-.107
180.0	687.30	-.180
180.0	693.00	-.102
181.0	694.00	-.125
180.0	700.00	-.203
180.0	706.00	.013
202.5	693.00	-.118
215.0	685.00	-.108
215.0	687.30	-.131
225.0	520.00	-.026
225.0	571.00	-.033
225.0	611.00	-.096
225.0	624.50	-.072
225.0	643.00	-.035
225.0	667.00	-.079
225.0	693.00	-.160
225.0	695.00	-.211
225.0	700.00	-.137
225.0	702.00	-.024
225.0	706.00	.001

PHI	X	CP
247.5	685.00	-.128
252.5	685.00	-.147
282.0	685.80	-.187
292.5	685.00	-.174
315.0	644.35	-.050
315.0	658.00	-.081
315.0	670.25	-.082
315.0	685.00	-.148
320.0	687.30	-.183
315.0	693.00	-.181
315.0	695.00	-.219
315.0	700.00	-.077
315.0	702.00	-.037
315.0	706.00	-.015
TCL	658.70	-.080
TCL	685.00	-.128
BCL	586.00	-.102
BCL	646.00	-.144
BCL	671.00	-.014

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TABLE 3.—Continued

M = 1.593

Q = 841.0

ALPHA = .81

BETA = -.57

NPR = 8.75

RN (10⁻⁶) = 3.59

AN CG = .99

M = 21130

DA L = 1.17

DH L = 1.03

OR L = 1.13

DSB = -3.08

AE L = 360

AE R = 372

PS 1 = 473.7

PS 2 = 469.7

M = 36063

DEL P = .10

PHI	X	CP
0.0	596.00	-.016
0.0	620.00	-.070
0.0	637.00	-.101
0.0	665.00	-.081
0.0	675.00	-.179
0.0	685.00	-.177
0.0	687.00	-.191
0.0	693.00	-.196
0.0	700.00	-.098
0.0	706.00	-.001
22.5	693.00	-.136
22.5	700.00	-.164
45.0	693.00	-.146
45.0	700.00	-.016
45.0	706.00	.012
50.0	685.00	-.103
50.0	687.30	-.140
77.0	685.00	-.003
90.0	693.00	.013
90.0	706.00	.004
135.0	685.00	-.065
135.0	687.30	-.060
135.0	693.00	-.050
135.0	695.00	-.104
135.0	700.00	-.101
135.0	702.00	.024
135.0	706.00	.056

PHI	X	CP
157.5	693.00	-.046
157.5	700.00	-.189
180.0	590.15	-.083
180.0	625.35	-.091
180.0	661.60	-.067
180.0	685.00	-.103
180.0	687.30	-.174
180.0	693.00	-.052
181.0	694.00	-.077
180.0	700.00	-.162
180.0	706.00	-.039
202.5	693.00	-.069
215.0	685.00	-.108
215.0	687.30	-.128
225.0	520.00	-.030
225.0	571.00	-.029
225.0	611.00	-.108
225.0	624.50	-.075
225.0	643.00	-.032
225.0	667.00	-.077
225.0	693.00	-.101
225.0	695.00	-.158
225.0	700.00	-.210
225.0	702.00	-.020
225.0	706.00	.033

PHI	X	CP
247.5	685.00	-.135
252.5	685.00	-.143
282.0	685.00	-.184
292.5	685.00	-.171
315.0	644.35	-.047
315.0	658.00	-.080
315.0	670.25	-.086
315.0	685.00	-.148
315.0	687.30	-.183
320.0	693.00	-.130
315.0	695.00	-.178
315.0	700.00	-.121
315.0	702.00	-.020
315.0	706.00	-.005
TCL	658.70	-.058
TCL	685.00	-.117
BCL	586.00	-.109
BCL	646.00	-.142
BCL	671.00	-.009

TABLE 3.—Continued

M = .901

Q = 146.6

ALPHA = 3.98

BETA = -1.01

NPR = 5.67

RN (10^{-6}) = 1.15

AN CG = 1.17

W = 20054

DA L = 15.53

DH L = -2.39

DR L = -.60

DSB = -.26

AE L = 228

AE R = 225

PS 1 = 262.8

PS 2 = 259.7

H = 48702

DEL P = .02

PHI	X	CP
0.0	596.00	-.324
0.0	620.00	-.330
0.0	637.00	-.099
0.0	665.00	-.023
0.0	675.00	-.136
0.0	685.00	-.142
0.0	687.00	-.140
0.0	693.00	-.113
0.0	700.00	-.073
0.0	706.00	.151
22.5	693.00	-.070
22.5	700.00	.054
45.0	693.00	.013
45.0	700.00	.038
45.0	706.00	.047
50.0	685.00	-.079
50.0	687.30	-.098
77.0	685.00	-.046
90.0	693.00	.067
90.0	706.00	.033
135.0	685.00	-.021
135.0	687.30	-.016
135.0	693.00	.045
135.0	695.00	.045
135.0	700.00	.044
135.0	702.00	.045
135.0	706.00	.048

PHI	X	CP
157.5	693.00	-.038
157.5	700.00	.052
180.0	590.15	-.056
180.0	625.35	-.059
180.0	661.60	-.065
180.0	685.00	-.133
180.0	687.30	-.130
180.0	693.00	-.060
181.0	694.00	-.030
180.0	700.00	.073
180.0	706.00	-.135
202.5	693.00	-.084
215.0	685.00	-.135
215.0	687.30	-.145
225.0	520.00	-.064
225.0	571.00	-.036
225.0	611.00	-.006
225.0	624.50	-.052
225.0	643.00	-.115
225.0	667.00	-.097
225.0	693.00	-.063
225.0	695.00	.031
225.0	700.00	.099
225.0	702.00	.140
225.0	706.00	.157

PHI	X	CP
247.5	685.00	-.129
252.5	685.00	-.104
282.0	585.00	-.087
292.5	685.00	-.075
315.0	544.35	-.032
315.0	658.00	-.077
315.0	670.25	-.081
315.0	685.00	-.094
320.0	687.30	-.099
315.0	693.00	-.028
315.0	695.00	-.031
315.0	700.00	-.089
315.0	702.00	-.134
315.0	706.00	-.159
TCL	658.70	-.016
TCL	685.00	-.055
BCL	586.00	-.073
BCL	646.00	-.096
BCL	571.00	-.039

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TABLE 3.—Continued

M = .963 AN CG = 1.24 AE L = 168
Q = 164.0 W = 21539 AE R = 224
ALPHA = 4.37 DA L = 16.53 PS 1 = 258.8
BETA = -.70 DH L = -3.86 PS 2 = 256.9
NPR = 6.11 DR L = .05 H = 49140
$RN (10^{-6}) = 1.22$ DS9 = -.32 DEL P = .04

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.323	157.5	693.00	.022	247.5	685.00	-.110
0.0	620.00	-.363	157.5	700.00	.063	252.5	685.00	-.080
0.0	637.00	-.074	180.0	590.15	-.040	282.0	685.00	-.054
0.0	665.00	.026	180.0	625.35	-.035	292.5	685.00	-.036
0.0	675.00	-.049	180.0	661.60	-.070	315.0	644.35	-.013
0.0	685.00	-.091	180.0	685.00	-.103	315.0	658.00	.011
0.0	687.00	-.088	180.0	687.30	-.040	315.0	670.25	-.019
0.0	693.00	-.070	180.0	693.00	-.005	315.0	685.00	-.041
0.0	700.00	-.106	181.0	694.00	-.020	320.0	687.30	-.047
0.0	706.00	-.172	186.0	700.00	-.089	315.0	693.00	-.009
22.5	693.00	-.037	202.5	706.00	-.135	315.0	695.00	-.054
22.5	700.00	-.076	215.0	693.00	-.025	315.0	700.00	-.114
45.0	693.00	-.033	215.0	685.00	-.124	315.0	702.00	.159
45.0	700.00	-.058	225.0	687.30	-.118	315.0	706.00	.181
45.0	706.00	-.064	225.0	520.00	-.114	TCL	658.70	-.033
50.0	685.00	-.036	225.0	571.00	-.089	TCL	685.00	-.001
50.0	637.30	-.050	225.0	611.00	-.025	BCL	586.00	-.062
77.0	685.00	-.063	225.0	624.50	-.026	BCL	646.00	-.094
90.0	693.00	-.081	225.0	643.00	-.116	BCL	671.00	-.004
90.0	706.00	-.057	225.0	667.00	-.109			
135.0	685.00	-.032	225.0	693.00	-.008			
135.0	687.30	-.037	225.0	695.00	.066			
135.0	693.00	-.068	225.0	700.00	.113			
135.0	695.00	-.061	225.0	702.00	.145			
135.0	700.00	-.058	225.0	706.00	.162			
135.0	702.00	-.053						
135.0	706.00	-.050						

TABLE 3.—Continued

M = .955
Q = 156.7

ALPHA = 4.47

BETA = -.74

NPR = 6.07
RN (10^{-6}) = 1.19

AN CG = 1.19

N = 21556

DA L = 12.26

DH L = -3.62

DP L = .02

DSB = -.30

AE L = 224

AE R = 223

PS 1 = 251.3

PS 2 = 248.8

H = 49727

DEL P = .04

PHI	X	CP
0.0	596.00	-.283
0.0	620.00	-.347
0.0	637.00	-.076
0.0	665.00	.013
0.0	675.00	-.067
0.0	645.00	-.105
0.0	687.00	-.103
0.0	693.00	-.082
0.0	700.00	.099
0.0	706.00	-.164
22.5	693.00	-.047
22.5	700.00	.067
45.0	693.00	.024
45.0	700.00	.049
45.0	706.00	.054
50.0	685.00	-.247
50.0	687.30	-.061
77.0	685.00	.053
90.0	693.00	.071
90.0	706.00	.048
135.0	685.00	.018
135.0	687.30	.026
135.0	693.00	.059
135.0	695.00	.051
135.0	702.00	.051
135.0	702.00	.049
135.0	706.00	.040

PHI	X	CP
157.5	693.00	.009
157.5	700.00	.057
180.0	690.15	-.045
180.0	625.35	-.048
180.0	661.60	.081
180.0	685.00	-.116
180.0	687.30	-.037
180.0	693.00	-.014
181.0	694.00	.012
180.0	700.00	.082
180.0	706.00	-.129
202.5	693.00	-.037
215.0	685.00	-.132
215.0	687.30	-.125
225.0	620.00	-.127
225.0	571.00	-.048
225.0	611.00	.018
225.0	624.50	-.037
225.0	643.00	-.125
225.0	667.00	-.119
225.0	693.00	-.019
225.0	695.00	.055
225.0	700.00	.104
225.0	702.00	.136
225.0	706.00	.154

PHI	X	CP
247.5	685.00	-.116
252.5	685.00	-.084
282.0	685.00	-.063
292.5	644.35	-.047
315.0	658.00	-.003
315.0	670.25	-.028
315.0	685.00	-.037
315.0	687.30	.057
320.0	693.00	.064
315.0	695.00	-.001
315.0	700.00	.046
315.0	702.00	.106
315.0	706.00	.150
315.0	658.70	.172
TCL	685.00	-.028
TCL	586.00	-.014
BCL	646.00	-.062
BCL	671.00	-.105
BCL		-.018

TABLE 3.—Continued

M = 1.243
Q = 276.1
ALPHA = 3.05
BETA = -.40
NPR = 7.94
RN (10^{-6}) = 1.59

AN CG = 1.20
W = 21 886
DA L = 16.94
DH L = -3.78
DR L = .02
DSB = -.33

AE L = 305
AE R = 337
PS 1 = 255.5
PS 2 = 253.0
H = 48902
DEL P = .06

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.090	157.5	693.00	-.191	247.5	685.00	-.213
0.0	620.00	-.207	157.5	700.00	-.155	252.5	685.00	-.231
0.0	637.00	-.246	180.0	590.15	-.096	282.0	685.00	-.302
0.0	665.00	-.113	180.0	625.35	-.110	292.5	685.00	-.245
0.0	675.00	-.219	180.0	661.60	-.104	315.0	644.35	-.100
0.0	685.00	-.190	180.0	685.00	-.167	315.0	658.00	-.166
0.0	687.00	-.194	180.0	687.30	0.000	315.0	670.25	-.144
0.0	693.00	-.258	180.0	693.00	-.210	315.0	685.00	-.213
0.0	700.00	-.063	181.0	694.00	-.242	320.0	687.30	-.240
0.0	706.00	-.024	180.0	700.00	-.133	315.0	693.00	-.255
22.5	693.00	-.279	180.0	706.00	.008	315.0	695.00	-.173
22.5	700.00	-.035	202.5	693.00	-.219	315.0	700.00	-.047
45.0	693.00	-.146	215.0	685.00	-.121	315.0	702.00	-.005
45.0	700.00	-.058	215.0	687.30	-.208	315.0	706.00	.007
45.0	706.00	-.023	225.0	520.00	.058	TCL	658.70	-.087
50.0	685.00	-.164	225.0	571.00	-.024	TCL	685.00	-.279
50.0	687.30	-.214	225.0	611.00	-.084	BCL	586.00	-.117
77.0	685.00	-.029	225.0	624.50	-.062	BCL	646.00	-.132
90.0	693.00	-.010	225.0	643.00	-.062	BCL	671.00	-.062
90.0	706.00	-.051	225.0	667.00	-.125			
135.0	685.00	-.137	225.0	693.00	-.278			
135.0	697.30	-.122	225.0	695.00	-.253			
135.0	693.00	-.136	225.0	700.00	-.087			
135.0	695.00	-.115	225.0	702.00	-.050			
135.0	700.00	-.057	225.0	706.00	-.017			
135.0	702.00	-.015						
135.0	706.00	+.005						

TABLE 3.—Continued

M = 1.242
Q = 265.7
ALPHA = 3.07
BETA = -.40
NPR = 7.90
-6
RN (10) = 1.55

AN CG = 1.10
W = 21719
DA L = 17.00
DH L = -3.66
DR L = .04
DSR = -.32

AE L = 302
AE R = 330
PS 1 = 246.4
PS 2 = 243.6
M = 49661
DEL P = .05

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.094	157.5	693.00	-.197	247.5	685.00	-.209
0.0	620.00	-.203	157.5	700.00	-.149	252.5	685.00	-.223
0.0	637.00	-.239	180.0	590.15	-.094	282.0	685.00	-.300
0.0	665.00	-.112	180.0	625.35	-.108	292.5	685.00	-.243
0.0	675.00	-.219	180.0	661.60	-.100	315.0	644.35	-.094
0.0	685.00	-.138	180.0	685.00	-.161	315.0	658.00	-.164
0.0	687.00	-.195	180.0	687.30	0.000	315.0	670.25	-.142
0.0	693.00	-.267	180.0	693.00	-.215	315.0	685.00	-.206
0.0	700.00	-.067	181.0	694.00	-.248	320.0	687.30	-.238
0.0	706.00	-.025	180.0	700.00	-.127	315.0	693.00	-.261
22.5	693.00	-.289	202.5	706.00	-.005	315.0	695.00	-.186
22.5	700.00	-.040	215.0	693.00	-.224	315.0	700.00	-.047
45.0	693.00	-.150	215.0	685.00	-.111	315.0	702.00	-.007
45.0	700.00	-.063	215.0	687.30	-.206	315.0	706.00	.005
45.0	706.00	-.028	225.0	520.00	-.061	TCL	658.70	-.089
50.0	685.00	-.164	225.0	571.00	-.020	TCL	685.00	-.276
50.0	687.30	-.211	225.0	611.00	-.083	BCL	586.00	-.120
77.0	685.00	-.032	225.0	624.50	-.061	BCL	646.00	-.128
90.0	693.00	-.015	225.0	643.00	-.060	BCL	571.00	-.061
90.0	706.00	-.053	225.0	667.00	-.125			
135.0	685.00	-.138	225.0	693.00	-.280			
135.0	687.30	-.127	225.0	695.00	-.267			
135.0	693.00	-.145	225.0	700.00	-.080			
135.0	695.00	-.119	225.0	702.00	-.048			
135.0	700.00	-.060	225.0	706.00	-.018			
135.0	702.00	-.019						
135.0	706.00	.002						

TABLE 3.—Continued

M = .893
Q = 137.1
ALPHA = 5.84
BETA = .63
NPR = 5.63
RN (10^{-6}) = 1.09

AN CG = 1.32
W = 22018
DA L = 4.30
DH L = -2.22
DR L = 1.93
DSB = -3.14

AE L = 235
AE R = 241
PS 1 = 250.1
PS 2 = 247.1
M = 49716
DEL P = .04

PHI	X	CP
0.0	596.00	-.328
0.0	620.00	-.296
0.0	637.00	-.094
0.0	665.00	-.020
0.0	675.00	-.129
0.0	685.00	-.134
0.0	687.00	-.129
0.0	693.00	-.101
0.0	700.00	.071
0.0	706.00	-.144
22.5	693.00	-.073
22.5	700.00	.050
45.0	693.00	.004
45.0	700.00	.033
45.0	706.00	.050
50.0	685.00	-.079
50.0	687.30	-.091
77.0	685.00	-.044
90.0	693.00	.064
90.0	706.00	.038
135.0	685.00	-.040
135.0	687.30	-.037
135.0	693.00	.010
135.0	695.00	.035
135.0	700.00	.043
135.0	702.00	.059
135.0	706.00	.078

PHI	X	CP
157.5	693.00	-.057
157.5	700.00	.054
180.0	690.15	-.058
180.0	625.35	-.054
180.0	661.60	-.055
180.0	685.00	-.126
180.0	687.30	-.119
180.0	693.00	-.053
181.0	694.00	-.022
180.0	700.00	.071
180.0	706.00	-.126
202.5	693.00	-.067
215.0	685.00	-.121
215.0	687.30	-.127
225.0	520.00	-.044
225.0	571.00	-.037
225.0	611.00	-.006
225.0	624.50	-.035
225.0	643.00	-.094
225.0	667.00	.085
225.0	693.00	-.045
225.0	695.00	.038
225.0	700.00	.086
225.0	702.00	.118
225.0	706.00	.139

PHI	X	CP
247.5	685.00	-.129
252.5	685.00	-.118
282.0	685.00	-.094
292.5	685.00	-.074
315.0	644.35	-.027
315.0	658.00	-.074
315.0	670.25	-.081
315.0	685.00	-.091
320.0	687.30	-.097
315.0	693.00	-.027
315.0	695.00	-.030
315.0	700.00	.092
315.0	702.00	.132
315.0	706.00	.154
TCL	658.70	.010
TCL	685.00	-.058
BCL	586.00	-.065
BCL	646.00	-.100
BCL	671.00	-.046

TABLE 3.—Continued

M = .599
Q = 366.6
ALPHA = 2.38
BETA = -.46
NPR = 1.86 -6
RN (10) = 3.23

AN CG = 1.93
W = 20278
DA L = 12.88
DH L = -1.09
DR L = -.12
DSB = -.40

AE L = 205
AE R = 205
PS 1 = 1469.3
PS 2 = 1411.0
M = 9954
DEL P = -.06

PHI	X	CP
0.0	596.00	-.215
0.0	620.00	-.164
0.0	637.00	-.101
0.0	665.00	-.049
0.0	675.00	-.175
0.0	685.00	-.194
0.0	687.00	-.201
0.0	693.00	-.211
0.0	700.00	-.004
0.0	706.00	-.112
22.5	693.00	-.163
22.5	700.00	-.018
45.0	693.00	-.046
45.0	700.00	.010
45.0	706.00	-.023
50.0	685.00	-.144
50.0	687.30	-.182
77.0	685.00	-.039
90.0	693.00	-.054
90.0	706.00	-.013
135.0	685.00	-.092
135.0	687.30	-.091
135.0	693.00	-.030
135.0	695.00	-.019
135.0	700.00	.030
135.0	702.80	.041
135.0	706.00	.051

PHI	X	CP
157.5	693.00	-.122
157.5	700.00	-.000
180.0	590.15	-.050
180.0	625.35	-.049
180.0	661.60	-.047
180.0	685.00	-.159
180.0	687.30	-.174
180.0	693.00	-.145
181.0	694.00	-.119
180.0	700.00	.001
180.0	706.00	.100
202.5	693.00	-.159
215.0	685.00	-.145
215.0	687.30	-.174
225.0	520.00	-.036
225.0	571.00	-.042
225.0	611.00	-.014
225.0	624.50	-.042
225.0	643.00	-.068
225.0	667.00	-.060
225.0	693.00	-.155
225.0	695.00	-.072
225.0	700.00	.025
225.0	702.00	.066
225.0	706.00	.111

PHI	X	CP
247.5	685.00	-.150
252.5	685.00	-.139
282.0	685.00	-.141
292.5	685.00	-.113
315.0	644.35	-.052
315.0	658.00	-.094
315.0	670.25	-.097
315.0	685.00	-.135
320.0	687.30	-.161
315.0	693.00	-.109
315.0	695.00	-.042
315.0	700.00	-.034
315.0	702.00	.089
315.0	706.00	-.121
TCL	658.70	-.031
TCL	685.00	-.096
BCL	685.00	-.073
BCL	586.00	-.081
BCL	646.00	-.055
BCL	671.00	

TABLE 3.—Continued

M = .624	AN CG = 1.91	AE L = 204
Q = 401.3	W = 20294	AE R = 205
ALPHA = 3.10	DA L = 11.85	PS 1 = 1482.5
BETA = -.35	OH L = -1.01	PS 2 = 1481.1
NPR = 1.86	DR L = -.07	M = 9740
RN (10^{-6}) = 3.38	DSB = -.41	DEL P = -.10

PHI	X	CP
0.0	596.00	-.216
0.0	620.00	-.165
0.0	637.00	-.101
0.0	665.00	-.050
0.0	675.00	-.178
0.0	685.00	-.197
0.0	687.00	-.203
0.0	693.00	-.209
0.0	700.00	-.005
0.0	706.00	-.113
22.5	693.00	-.164
22.5	700.00	-.021
45.0	693.00	-.045
45.0	700.00	-.015
45.0	706.00	-.026
50.0	685.00	-.142
77.0	687.30	-.177
90.0	685.00	-.043
90.0	693.00	-.057
90.0	706.00	-.019
135.0	685.00	-.087
135.0	687.30	-.088
135.0	693.00	-.021
135.0	695.00	-.022
135.0	702.00	-.030
135.0	702.00	-.043
135.0	706.00	.050

PHI	X	CP
157.5	693.00	-.120
157.5	700.00	.001
180.0	590.15	-.054
180.0	625.35	-.052
180.0	661.60	-.050
180.0	685.00	-.161
180.0	687.30	-.177
180.0	693.00	-.145
181.0	694.00	-.117
180.0	700.00	-.004
180.0	706.00	-.102
202.5	693.00	-.157
215.0	685.00	-.146
215.0	687.30	-.176
225.0	520.00	-.045
225.0	571.00	-.045
225.0	611.00	-.015
225.0	624.50	-.046
225.0	643.00	-.073
225.0	667.00	-.063
225.0	693.00	-.154
225.0	695.00	-.068
225.0	700.00	.027
225.0	702.00	.069
225.0	706.00	.113

PHI	X	CP
247.5	685.00	-.151
252.5	685.00	-.139
282.0	685.00	-.139
292.5	685.00	-.113
315.0	644.35	-.052
315.0	658.00	-.095
315.0	670.25	-.098
315.0	685.00	-.139
320.0	687.30	-.166
315.0	693.00	-.111
315.0	695.00	-.041
315.0	700.00	-.036
315.0	702.00	.091
315.0	706.00	-.122
TCL	658.70	-.027
TCL	685.00	-.095
BCL	586.00	-.076
BCL	646.00	-.082
BCL	671.00	-.054

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TABLE 3.—Continued

M = .629

Q = 296.1

ALPHA = 4.15

BETA = -.75

NPR = 2.03
-6
RN (10) = 2.70

AN CG = 1.73

W = 22427

DA L = 4.13

DH L = -1.38

DR L = -.44

DSB = -3.21

AE L = 204

AE R = 204

PS 1 = 1079.0

PS 2 = 1076.1

H = 17701

DEL P = -.03

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.216	157.5	693.00	-.111	247.5	685.00	-.156
0.0	620.00	-.164	157.5	700.00	.008	252.5	685.00	-.145
0.0	637.00	-.098	180.0	590.15	-.051	282.0	685.00	-.147
0.0	665.00	-.049	180.0	625.35	-.051	292.5	685.00	-.115
0.0	675.00	-.172	180.0	661.60	-.048	315.0	644.35	-.055
0.0	685.00	-.193	180.0	685.00	-.161	315.0	658.00	-.095
0.0	687.00	-.202	180.0	687.30	-.177	315.0	670.25	-.097
0.0	693.00	-.199	180.0	693.00	-.141	315.0	685.00	-.138
0.0	700.00	.010	181.0	694.00	-.114	315.0	687.30	-.164
0.0	706.00	-.109	180.0	700.00	-.010	320.0	693.00	-.106
22.5	693.00	-.154	202.5	706.00	-.103	315.0	695.00	-.039
22.5	700.00	.018	215.0	693.00	-.155	315.0	700.00	.037
45.0	693.00	-.041	215.0	685.00	-.149	315.0	702.00	.093
45.0	700.00	.013	215.0	687.30	-.178	315.0	706.00	.122
45.0	706.00	.027	225.0	520.00	-.033	TCL	658.70	-.029
50.0	685.00	-.140	225.0	571.00	-.042	TCL	685.00	-.097
50.0	687.30	-.175	225.0	611.00	-.014	BCL	586.00	-.010
77.0	685.00	-.033	225.0	624.50	-.045	BCL	646.00	-.079
90.0	693.00	.056	225.0	643.00	-.072	BCL	671.00	-.054
90.0	706.00	.022	225.0	667.00	-.063			
135.0	685.00	-.087	225.0	693.00	-.150			
135.0	687.30	-.085	225.0	695.00	-.068			
135.0	693.00	-.009	225.0	700.00	.031			
135.0	695.00	.025	225.0	702.00	.077			
135.0	700.00	.029	225.0	706.00	.107			
135.0	702.00	.039						
135.0	706.00	.040						

TABLE 3.—Continued

M = .603
Q = 278.6
ALPHA = 5.44
BETA = -.80
NPR = 2.02
RN (10⁻⁶) = 2.62

AN CG = 2.14
M = 22398
DA L = 3.59
DH L = -1.63
DR L = -.40
DSB = -3.27

AE L = 204
AE R = 204
PS 1 = 1101.5
PS 2 = 1100.1
H = 17190
DEL P = -.02

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.216	157.5	693.00	-.122	247.5	685.00	-.148
0.0	620.00	-.162	157.5	700.00	.004	252.5	685.00	-.141
0.0	637.00	-.099	180.0	590.15	-.040	282.0	685.00	-.149
0.0	665.00	-.045	180.0	625.35	-.038	292.5	685.00	-.110
0.0	675.00	-.169	180.0	661.60	-.038	315.0	644.35	-.052
0.0	685.00	-.180	180.0	685.00	-.158	315.0	658.00	-.091
0.0	687.00	-.189	180.0	687.30	-.175	315.0	670.25	-.093
0.0	693.00	-.182	180.0	693.00	-.143	315.0	685.00	-.120
0.0	700.00	-.014	181.0	694.00	-.116	315.0	687.30	-.153
0.0	706.00	-.103	180.0	700.00	.009	320.0	693.00	-.100
22.5	693.00	-.143	180.0	706.00	.100	315.0	695.00	-.036
22.5	700.00	-.020	202.5	693.00	-.154	315.0	700.00	-.038
45.0	693.00	-.039	215.0	685.00	-.140	315.0	702.00	.092
45.0	706.00	-.013	215.0	687.30	-.168	315.0	706.00	-.121
45.0	706.00	-.027	225.0	520.00	-.008	TCL	658.70	-.031
50.0	685.00	-.134	225.0	571.00	-.030	TCL	685.00	-.096
50.0	687.30	-.163	225.0	611.00	-.002	BCL	586.00	.016
77.0	685.00	-.034	225.0	624.50	-.029	BCL	646.00	-.073
90.0	693.00	.052	225.0	643.00	-.059	BCL	671.00	-.053
90.0	706.00	-.021	225.0	667.00	-.054			
135.0	685.00	-.096	225.0	693.00	-.143			
135.0	687.30	-.093	225.0	695.00	-.062			
135.0	693.00	-.019	225.0	700.00	.034			
135.0	695.00	-.023	225.0	702.00	.079			
135.0	700.00	-.028	225.0	706.00	.099			
135.0	702.00	.038						
135.0	706.00	.045						

TABLE 3.—Continued

M = .615
Q = 207.6
ALPHA = 6.49
BETA = -.61
NPR = 2.52
RN (10⁻⁶) = 2.09

AN CG = 1.71
W = 23704
DA L = 1.24
DH L = -2.07
DR L = -.15
DSB = -.37

AE L = 205
AE R = 206
PS 1 = 790.6
PS 2 = 786.9
H = 25035
DEL P = -.01

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.225	157.5	693.00	-.134	247.5	685.00	-.153
0.0	620.00	-.172	157.5	700.00	-.000	252.5	685.00	-.144
0.0	637.00	-.108	180.0	590.15	-.046	282.0	685.00	-.149
0.0	665.00	-.042	180.0	625.35	-.045	292.5	644.35	-.107
0.0	675.00	-.171	180.0	661.60	-.037	315.0	658.00	-.053
0.0	685.00	-.172	180.0	685.00	-.162	315.0	670.25	-.092
0.0	687.00	-.177	180.0	687.30	-.293	315.0	685.00	-.091
0.0	693.00	-.167	180.0	693.00	-.141	315.0	685.00	-.122
0.0	700.00	-.018	181.0	694.00	-.114	320.0	687.30	-.142
0.0	706.00	-.100	180.0	700.00	.013	315.0	693.00	-.090
22.5	693.00	-.138	180.0	706.00	.099	315.0	695.00	-.031
22.5	700.00	.015	202.5	693.00	-.150	315.0	700.00	.040
45.0	693.00	-.041	215.0	685.00	-.143	315.0	702.00	.095
45.0	700.00	-.007	215.0	687.30	-.167	315.0	706.00	-.120
45.0	706.00	.024	225.0	520.00	.001	TCL	658.70	-.033
50.0	685.00	-.129	225.0	571.00	-.024	TCL	685.00	-.095
50.0	687.30	-.155	225.0	611.00	-.001	BCL	586.00	-.059
77.0	685.00	.030	225.0	624.50	-.028	BCL	646.00	-.079
90.0	693.00	.049	225.0	643.00	-.061	BCL	671.00	-.055
90.0	706.00	.011	225.0	667.00	-.055			
135.0	685.00	-.104	225.0	693.00	-.130			
135.0	687.30	-.106	225.0	695.00	-.041			
135.0	693.00	-.038	225.0	700.00	.043			
135.0	695.00	.009	225.0	702.00	.091			
135.0	700.00	.024	225.0	706.00	.091			
135.0	702.00	.037						
135.0	706.00	.049						

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TABLE 3.—Continued

M = .914
Q = 746.2
ALPHA = 1.35
BETA = -.59
NPR = 3.71
RN (10⁻⁶) = 4.52

AN CG = 1.88
W = 23065
DA L = .91
OH L = -1.49
DR L = -.21
DSR = -.25

AE L = 205
AE R = 205
PS 1 = 1301.4
PS 2 = 1301.0
W = 13350
DEL P = -.14

PHI	X	CP
0.0	596.00	-.288
0.0	620.00	-.341
0.0	637.00	-.097
0.0	665.00	-.031
0.0	675.00	-.183
0.0	685.00	-.193
0.0	687.00	-.181
0.0	693.00	-.184
0.0	700.00	-.044
0.0	706.00	-.144
22.5	693.00	-.114
22.5	700.00	.052
45.0	693.00	-.010
45.0	700.00	-.033
45.0	706.00	.037
50.0	685.00	-.126
50.0	687.30	-.151
77.0	685.00	-.060
90.0	693.00	.075
90.0	706.00	.029
135.0	685.00	-.008
135.0	687.30	-.006
135.0	693.00	.048
135.0	695.00	.044
135.0	700.00	-.042
135.0	702.00	.039
135.0	706.00	.035

PHI	X	CP
157.5	693.00	-.047
157.5	700.00	.040
180.0	590.15	-.065
180.0	625.35	-.058
180.0	661.60	-.067
180.0	685.00	-.146
180.0	687.30	-.032
180.0	693.00	-.096
181.0	694.00	-.057
180.0	700.00	.053
202.5	706.00	.132
215.0	693.00	-.169
215.0	685.00	-.193
225.0	687.30	-.106
225.0	520.00	-.051
225.0	571.00	-.008
225.0	611.00	-.048
225.0	624.50	-.109
225.0	643.00	-.104
225.0	667.00	-.128
225.0	693.00	-.014
225.0	695.00	.081
225.0	700.00	.137
225.0	702.00	.156
225.0	706.00	

PHI	X	CP
247.5	685.00	-.173
252.5	685.00	-.150
282.0	685.00	-.126
292.5	685.00	-.111
315.0	644.35	-.032
315.0	658.00	-.091
315.0	670.25	-.107
315.0	685.00	-.143
315.0	687.30	-.159
320.0	693.00	-.096
315.0	695.00	-.014
315.0	700.00	-.066
315.0	702.00	-.124
315.0	706.00	-.149
TCL	658.70	-.005
TCL	685.00	-.071
BCL	586.00	-.083
BCL	646.00	-.094
BCL	671.00	-.032

TABLE 3.—Continued

M = .932

Q = 437.7

ALPHA = 2.44

BETA = -.61

NPR = 4.28 -6

RN (10) = 2.98

AN CG = 1.99

W = 22344

DA L = .91

DH L = -2.21

DR L = -.31

DSB = -.25

AE L = 205

AE R = 205

PS 1 = 734.9

PS 2 = 733.1

H = 26994

DEL P = -.03

PHI	X	CP
0.0	596.00	-.267
0.0	620.00	-.354
0.0	637.00	-.130
0.0	665.00	-.019
0.0	675.00	-.145
0.0	685.00	-.168
0.0	687.00	-.161
0.0	693.00	-.143
0.0	700.00	-.067
0.0	706.00	-.147
22.5	693.00	-.084
22.5	700.00	.057
45.0	693.00	-.009
45.0	700.00	.038
45.0	706.00	-.041
50.0	685.00	-.095
50.0	687.30	-.119
77.0	685.00	-.059
90.0	693.00	.075
90.0	706.00	-.037
135.0	685.00	-.006
135.0	687.30	-.001
135.0	693.00	.052
135.0	695.00	.047
135.0	700.00	.045
135.0	702.00	.040
135.0	706.00	.035

PHI	X	CP
157.5	693.00	-.032
157.5	700.00	.045
180.0	590.15	-.058
180.0	625.35	-.060
180.0	661.60	-.077
180.0	685.00	-.140
180.0	687.30	-.024
180.0	693.00	-.068
181.0	694.00	-.037
180.0	700.00	.064
180.0	706.00	-.126
202.5	693.00	-.105
215.0	685.00	-.161
215.0	687.30	-.180
225.0	520.00	-.142
225.0	571.00	-.037
225.0	611.00	-.003
225.0	624.50	-.049
225.0	643.00	-.118
225.0	667.00	-.108
225.0	693.00	-.092
225.0	695.00	.012
225.0	700.00	.089
225.0	702.00	.134
225.0	706.00	.150

PHI	X	CP
247.5	685.00	-.153
252.5	685.00	-.126
282.0	685.00	-.112
292.5	644.35	-.097
315.0	658.00	-.029
315.0	670.25	-.074
315.0	685.00	-.087
315.0	687.30	-.120
320.0	693.00	-.133
315.0	695.00	-.068
315.0	700.00	.001
315.0	702.00	.071
315.0	706.00	-.129
TCL	658.70	-.156
TCL	685.00	-.020
BCL	586.00	-.055
BCL	586.00	-.075
BCL	646.00	-.104
BCL	671.00	-.038

TABLE 3.—Continued

M = .880

Q = 383.2

ALPHA = 2.57

BETA = -1.03

NPR = 3.37

RN (10^{-6}) = 2.58

AN CG = 1.97

W = 21178

OA L = 2.17

DH L = -1.48

DR L = -1.08

DSB = -3.20

AE L = 205

AE R = 205

PS 1 = 720.1

PS 2 = 717.2

M = 27366

DEL P = -.04

PHI	X	CP		PHI	X	CP		PHI	X	CP
0.0	596.00	-.355		157.5	693.00	-.064		247.5	685.00	-.174
0.0	620.00	-.211		157.5	700.00	.036		252.5	645.00	-.158
0.0	637.00	-.081		180.0	690.15	-.066		282.0	685.00	-.132
0.0	665.00	-.038		180.0	625.35	-.064		292.5	685.00	-.114
0.0	675.00	-.177		180.0	661.60	-.067		315.0	644.35	-.041
0.0	685.00	-.193		180.0	685.00	-.150		315.0	658.00	-.102
0.0	687.00	-.193		180.0	687.30	-.153		315.0	670.25	-.112
0.0	693.00	-.174		180.0	693.00	-.101		315.0	685.00	-.145
0.0	700.00	-.050		181.0	694.00	-.070		320.0	687.30	-.164
0.0	706.00	.135		180.0	700.00	.046		315.0	693.00	-.084
22.5	693.00	-.103		180.0	706.00	-.119		315.0	695.00	-.002
22.5	700.00	-.048		202.5	693.00	-.141		315.0	700.00	.074
45.0	693.00	-.002		215.0	685.00	-.168		315.0	702.00	-.124
45.0	700.00	-.031		215.0	687.30	-.196		315.0	706.00	.147
45.0	706.00	.031		225.0	520.00	-.069		TCL	658.70	.007
50.0	685.00	-.113		225.0	571.00	-.052		TCL	685.00	-.078
50.0	687.30	-.140		225.0	611.00	-.018		BCL	586.00	-.082
77.0	685.00	-.049		225.0	624.50	-.063		BCL	646.00	-.094
90.0	693.00	.071		225.0	643.00	-.112		BCL	671.00	-.049
90.0	706.00	-.030		225.0	667.00	-.100				
135.0	685.00	-.037		225.0	693.00	-.140				
135.0	687.30	-.030		225.0	695.00	-.032				
135.0	693.00	.043		225.0	700.00	.067				
135.0	695.00	.045		225.0	702.00	.126				
135.0	700.00	.043		225.0	706.00	.150				
135.0	702.00	.041								
135.0	706.00	.038								

TABLE 3.—Continued

M = .866

Q = 362.4

ALPHA = 2.63

BETA = -.68

NPR = 3.40

RN (10^{-6}) = 2.80

AN CG = 1.86

W = 21144

DA L = 2.35

DH L = -1.32

DR L = -.54

DSB = -3.22

AE L = 205

AE R = 204

PS 1 = 702.0

PS 2 = 698.7

H = 27919

DEL P = -.03

PHI	X	CP
0.0	596.00	-.346
0.0	620.00	-.205
0.0	637.00	-.092
0.0	665.00	-.041
0.0	675.00	-.180
0.0	685.00	-.193
0.0	687.00	-.194
0.0	693.00	-.177
0.0	700.00	-.045
0.0	706.00	-.133
22.5	693.00	-.108
22.5	700.00	-.044
45.0	693.00	-.010
45.0	700.00	-.026
45.0	706.00	-.026
50.0	685.00	-.114
50.0	687.31	-.139
50.0	685.00	-.048
77.0	693.00	-.067
90.0	706.00	-.026
90.0	685.00	-.041
135.0	687.30	-.036
135.0	693.00	-.033
135.0	695.00	-.040
135.0	700.00	-.039
135.0	702.00	-.037
135.0	706.00	-.037

PHI	X	CP
157.5	693.00	-.073
157.5	700.00	-.033
180.0	590.15	-.065
180.0	625.35	-.061
180.0	661.60	-.064
180.0	685.00	-.154
180.0	687.30	-.159
180.0	693.00	-.109
181.0	694.00	-.077
180.0	700.00	-.045
180.0	706.00	-.120
202.5	693.00	-.141
215.0	685.00	-.162
215.0	687.30	-.189
225.0	720.00	-.070
225.0	571.00	-.053
225.0	611.00	-.015
225.0	624.50	-.055
225.0	643.00	-.101
225.0	667.00	-.091
225.0	693.00	-.140
225.0	695.00	-.038
225.0	700.00	.060
225.0	702.00	.123
225.0	706.00	.147

PHI	X	CP
247.5	685.00	-.166
252.5	685.00	-.151
282.0	685.00	-.127
292.5	685.00	-.110
315.0	644.35	-.046
315.0	658.00	-.103
315.0	670.25	-.112
315.0	685.00	-.112
320.0	687.30	-.143
315.0	693.00	-.163
315.0	695.00	-.081
315.0	700.00	-.000
315.0	702.00	-.074
315.0	706.00	-.121
TCL	658.70	-.144
TCL	685.00	-.007
BCL	685.00	-.082
BCL	586.00	-.081
BCL	646.00	-.091
BCL	671.00	-.049

TABLE 3.—Continued

M = .954
Q = 224.5
ALPHA = 4.75
BETA = -.77
NPR = 5.99 -6
RN (10) = 1.62

AN CG = 2.06
W = 20251
DA L = .90
DH L = -3.64
DR L = -.48
OSB = -.23

AE L = 220
AE R = 220
PS 1 = 360.9
PS 2 = 359.2
H = 42197
DEL P = .03

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.261	157.5	693.00	.000	247.5	585.00	-.107
0.0	620.00	-.335	157.5	700.00	.060	252.5	685.00	-.083
0.0	637.00	-.086	180.0	590.15	-.039	282.0	685.00	-.061
0.0	665.00	.012	180.0	625.35	-.043	292.5	685.00	-.051
0.0	675.00	-.082	180.0	661.60	-.074	315.0	644.35	-.006
0.0	685.00	-.113	180.0	685.00	-.118	315.0	658.00	-.027
0.0	687.00	-.110	180.0	687.30	-.153	315.0	670.25	-.039
0.0	693.00	-.089	180.0	693.00	-.025	315.0	685.00	-.060
0.0	700.00	.091	180.0	694.00	.004	320.0	687.30	-.069
0.0	706.00	.162	181.0	700.00	.084	315.0	593.00	-.012
22.5	693.00	-.057	180.0	706.00	-.133	315.0	695.00	-.037
22.5	700.00	.068	202.5	693.00	-.050	315.0	700.00	-.103
45.0	693.00	.021	215.0	685.00	-.131	315.0	702.00	.151
45.0	700.00	.049	215.0	687.30	-.127	315.0	706.00	.178
45.0	706.00	.053	225.0	520.00	-.125	TCL	658.70	.026
50.0	685.00	-.057	225.0	571.00	-.030	TCL	685.00	-.016
50.0	687.30	-.075	225.0	611.00	.024	BCL	586.00	-.059
77.0	685.00	.059	225.0	624.50	-.036	BCL	546.00	-.103
90.0	693.00	.075	225.0	643.00	-.115	BCL	571.00	-.021
90.0	706.00	.050	225.0	667.00	-.109			
135.0	685.00	.013	225.0	693.00	.026			
135.0	687.30	.021	225.0	695.00	.054			
135.0	693.00	.061	225.0	700.00	.106			
135.0	695.00	.053	225.0	702.00	.140			
135.0	700.00	.050	225.0	706.00	.154			
135.0	702.00	.046						
135.0	706.00	.045						

TABLE 3.—Continued

M = 1.200

G = 764.6

ALPHA = 2.10

BETA = -.44

NPR = 6.35

RN (10^{-6}) = 3.77

AN CG = 2.12

W = 21079

DA L = 8.18

DH L = -1.79

DR L = -1.31

DSB = -.23

AE L = 296

AE R = 309

PS 1 = 759.2

PS 2 = 759.3

H = 25790

DEL P = .01

PHI	X	CP
0.0	596.00	-.080
0.0	620.00	-.185
0.0	637.00	-.226
0.0	665.00	-.109
0.0	675.00	-.173
0.0	685.00	-.204
0.0	687.00	-.219
0.0	693.00	-.372
0.0	700.00	-.154
0.0	706.00	-.049
22.5	693.00	-.341
22.5	700.00	-.160
45.0	693.00	-.351
45.0	700.00	-.142
45.0	706.00	-.090
50.0	685.00	-.193
50.0	687.30	-.267
77.0	685.00	-.169
90.0	693.00	-.078
90.0	706.00	-.120
135.0	685.00	-.179
135.0	687.30	-.155
135.0	693.00	-.249
135.0	695.00	-.265
135.0	702.00	-.146
135.0	702.00	-.072
135.0	706.00	-.043

PHI	X	CP
157.5	693.00	-.219
157.5	700.00	-.404
180.0	590.15	-.129
180.0	625.35	-.119
180.0	661.60	-.079
180.0	685.00	-.168
180.0	687.30	-.202
180.0	693.00	-.215
181.0	694.00	-.241
180.0	700.00	-.354
180.0	706.00	-.065
202.5	693.00	-.209
215.0	685.00	-.159
215.0	687.30	-.206
225.0	520.00	-.022
225.0	571.00	-.035
225.0	611.00	-.105
225.0	624.50	-.061
225.0	643.00	-.065
225.0	667.00	-.123
225.0	693.00	-.258
225.0	695.00	-.333
225.0	700.00	-.286
225.0	702.03	-.082
225.0	706.00	-.047

PHI	X	CP
247.5	585.00	-.203
252.5	585.00	-.211
282.0	585.00	-.271
292.5	585.00	-.245
315.0	544.35	-.092
315.0	658.00	-.164
315.0	670.25	-.137
315.0	585.00	-.229
320.0	587.30	-.252
315.0	593.00	-.310
315.0	695.00	-.354
315.0	700.00	-.145
315.0	702.00	-.061
315.0	706.00	-.035
TCL	658.70	-.241
TCL	685.00	-.243
BCL	586.00	-.171
BCL	646.00	-.099
BCL	571.00	-.052

TABLE 3.—Continued

M = 1.178
Q = 704.8
ALPHA = 2.11
BETA = -.46
NPR = 6.34
$RN(10^{-6}) = 3.95$

AN CG = 1.92
W = 21192
DA L = 7.81
DH L = -1.87
DR L = -.96
DSB = -.29

AE L = 297
AE R = 314
PS 1 = 726.4
PS 2 = 723.8
H = 26786
DEL P = -.02

PHI	X	CP
0.0	596.00	-.100
0.0	620.00	-.203
0.0	637.00	-.242
0.0	665.00	-.104
0.0	675.00	-.181
0.0	685.00	-.224
0.0	637.00	-.241
0.0	693.00	-.398
0.0	700.00	-.146
0.0	706.00	-.048
22.5	693.00	-.367
22.5	700.00	-.154
45.0	693.00	-.350
45.0	700.00	-.150
50.0	706.00	-.092
50.0	685.00	-.213
77.0	687.30	-.287
90.0	685.00	-.111
90.0	693.00	-.080
135.0	706.00	-.122
135.0	685.00	-.189
135.0	687.30	-.162
135.0	693.00	-.258
135.0	695.00	-.266
135.0	700.00	-.145
135.0	702.00	-.074
135.0	706.00	-.045

PHI	X	CP
157.5	693.00	-.234
157.5	700.00	-.391
180.0	590.15	-.142
180.0	625.35	-.127
180.0	661.60	-.084
180.0	685.00	-.179
180.0	687.30	-.210
180.0	693.00	-.230
181.0	694.00	-.257
180.0	700.00	-.340
180.0	706.00	-.060
202.5	693.00	-.225
215.0	685.00	-.170
225.0	687.30	-.221
225.0	520.00	.007
225.0	571.00	-.050
225.0	611.00	-.113
225.0	624.50	-.060
225.0	643.00	-.075
225.0	667.00	-.129
225.0	693.00	-.276
225.0	695.00	-.352
225.0	700.00	-.264
225.0	702.00	-.074
225.0	706.00	-.041

PHI	X	CP
247.5	685.00	-.213
252.5	685.00	-.219
282.0	685.00	-.283
292.5	685.00	-.256
315.0	644.35	-.102
315.0	658.00	-.170
315.0	670.25	-.137
315.0	685.00	-.239
320.0	687.30	-.263
315.0	693.00	-.322
315.0	695.00	-.369
315.0	700.00	-.131
315.0	702.00	-.060
315.0	706.00	-.035
TCL	658.70	-.237
TCL	685.00	-.229
BCL	586.00	-.170
BCL	646.00	-.097
BCL	671.00	-.060

TABLE 3.—Continued

M = 1.191
Q = 386.8
ALPHA = 3.00
BETA = -.38
NPR = 7.36
RN (10^-6) = 2.24

AN CG = 1.61
W = 21185
DA L = 4.63
DH L = -3.77
DR L = -.34
DSR = -3.17

AE L = 329
AE R = 331
PS 1 = 389.6
PS 2 = 385.3
H = 40124
DEL P = .01

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.115	157.5	693.00	-.178	247.5	685.00	-.233
0.0	620.00	-.227	157.5	700.00	-.266	252.5	685.00	-.251
0.0	637.00	-.267	180.0	590.15	0.000	282.0	685.00	-.288
0.0	665.00	-.089	180.0	625.35	-.110	292.5	685.00	-.247
0.0	675.00	-.182	180.0	661.60	-.103	315.0	644.35	-.101
0.0	685.00	-.209	180.0	685.00	-.184	315.0	658.00	-.162
0.0	687.00	-.220	180.0	687.30	-.227	315.0	670.25	-.134
0.0	693.00	-.310	180.0	693.00	-.192	315.0	685.00	-.221
0.0	700.00	-.070	181.0	694.00	-.224	320.0	687.30	-.253
0.0	706.00	-.019	180.0	700.00	-.219	315.0	693.00	-.249
22.5	693.00	-.292	180.0	706.00	.011	315.0	695.00	-.206
22.5	700.00	-.042	202.5	693.00	-.201	315.0	700.00	-.049
45.0	693.00	-.212	215.0	685.00	-.181	315.0	702.00	-.008
45.0	700.00	-.079	215.0	687.30	-.223	315.0	706.00	.025
45.0	706.00	-.019	225.0	520.00	-.033	TCL	658.70	-.120
50.0	685.00	-.185	225.0	571.00	-.052	TCL	685.00	-.256
50.0	687.30	-.245	225.0	611.00	-.087	BCL	586.00	0.000
77.0	685.00	-.045	225.0	624.50	-.060	BCL	646.00	-.110
90.0	693.00	-.022	225.0	643.00	-.068	BCL	671.00	-.062
90.0	706.00	-.060	225.0	667.00	-.134			
135.0	695.00	-.158	225.0	693.00	-.264			
135.0	687.30	-.127	225.3	695.00	-.352			
135.0	693.00	-.152	225.0	700.00	-.085			
135.0	695.00	-.159	225.0	702.00	-.015			
135.0	700.00	-.082	225.0	706.00	.007			
135.0	702.00	-.020						
135.0	706.00	.012						

TABLE 3.—Continued

M = 1.183

Q = 364.2

ALPHA = 3.92

BETA = -.42

NPR = 7.42

RN (10^{-6}) = 2.12

AN CG = 2.06

W = 22996

DA L = .62

DH L = -5.19

DR L = -.39

OSB = -.29

AE L = 308

AE R = 313

PS 1 = 371.9

PS 2 = 368.6

N = 41091

DEL P = -.02

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	595.00	-.147	157.5	693.00	-.206	247.5	665.00	-.247
0.0	620.00	-.251	157.5	700.00	-.244	252.5	685.00	-.268
0.0	637.00	-.302	180.0	590.15	-.087	282.0	685.00	-.295
0.0	665.00	-.043	180.0	625.35	-.121	292.5	644.35	-.261
0.0	675.00	-.198	180.0	661.60	-.109	315.0	658.00	-.107
0.0	685.00	-.211	180.0	685.00	-.185	315.0	670.25	-.178
0.0	687.00	-.218	180.0	687.30	-.222	315.0	685.00	-.126
0.0	693.00	-.247	180.0	693.00	-.219	315.0	687.30	-.225
0.0	700.00	-.070	181.0	694.00	-.250	320.0	693.00	-.262
0.0	706.00	-.040	180.0	700.00	-.249	315.0	695.00	-.269
22.5	693.00	-.319	180.0	706.00	-.004	315.0	700.00	-.166
22.5	700.00	-.040	202.5	693.00	-.226	315.0	702.00	-.046
45.0	693.00	-.187	215.0	685.00	-.194	315.0	706.00	-.014
45.0	700.00	-.075	215.0	687.30	-.236	TCL	658.70	-.001
45.0	706.00	-.032	225.0	520.00	-.055	TCL	685.00	-.115
50.0	685.00	-.181	225.0	571.00	-.049	BCL	586.00	-.190
50.0	687.30	-.244	225.0	611.00	-.078	BCL	646.00	-.090
77.0	685.00	-.043	225.0	624.50	-.049	BQL	671.00	-.136
90.0	693.00	-.024	225.0	643.00	-.071			-.063
90.0	706.00	-.070	225.0	667.00	-.136			
135.0	685.00	-.160	225.0	693.00	-.294			
135.0	687.30	-.142	225.0	695.00	-.307			
135.0	693.00	-.167	225.0	700.00	-.103			
135.0	695.00	-.151	225.0	702.00	-.060			
135.0	700.00	-.082	225.0	706.00	-.027			
135.0	702.00	-.035						
135.0	706.00	-.009						

TABLE 3.—Continued

M = .628

Q = 437.3

ALPHA = 4.94

BETA = -4.90

NPR = 2.67

RN (10^-6) = 3.61

AN CG = 3.44

W = 21934

DA L = -.79

DH L = -2.78

DR L = -5.97

DSB = -3.17

AE L = 207

AE R = 258

PS 1 = 1597.1

PS 2 = 1596.4

H = 7806

DEL P = -.03

PHI	X	CP
0.0	596.00	-.230
0.0	620.00	-.131
0.0	637.00	-.081
0.0	665.00	-.039
0.0	675.00	-.168
0.0	685.00	-.161
0.0	687.00	-.163
0.0	693.00	-.125
0.0	700.00	.036
0.0	706.00	.082
22.5	693.00	-.137
22.5	700.00	.030
45.0	693.00	-.064
45.0	700.00	-.017
45.0	706.00	.041
50.0	685.00	-.126
50.0	687.30	-.168
77.0	685.00	.031
90.0	693.00	.052
90.0	706.00	.015
135.0	685.00	-.119
135.0	687.30	-.112
135.0	693.00	-.051
135.0	695.00	.008
135.0	700.00	.032
135.0	702.00	.045
135.0	706.00	.059

PHI	X	CP
157.5	693.00	-.142
157.5	700.00	-.022
180.0	690.15	-.049
180.0	625.35	-.056
180.0	661.60	-.055
180.0	685.00	-.179
180.0	687.30	-.189
180.0	693.00	-.175
181.0	694.00	-.150
180.0	700.00	-.025
202.5	706.00	.098
215.0	693.00	-.205
215.0	685.00	-.179
215.0	687.30	-.209
225.0	520.00	-.009
225.0	571.00	-.024
225.0	611.00	-.040
225.0	624.50	-.087
225.0	643.00	-.102
225.0	667.00	-.078
225.0	693.00	-.209
225.0	695.00	-.121
225.0	700.00	-.005
225.0	702.00	.083
225.0	706.00	.105

PHI	X	CP
247.5	685.00	-.186
252.5	685.00	-.175
282.0	685.00	-.168
292.5	685.00	-.123
315.0	644.35	-.062
315.0	658.00	-.103
315.0	670.25	-.110
315.0	685.00	-.148
320.0	687.30	-.165
315.0	693.00	-.128
315.0	695.00	-.063
315.0	700.00	.018
315.0	702.00	.090
315.0	706.00	-.126
TCL	658.70	-.035
TCL	685.00	-.090
BCL	586.00	.014
BCL	646.00	-.080
BCL	571.00	-.066

TABLE 3.—Continued

M = .590
Q = 373.2
ALPHA = 6.24
BETA = -.60
NPR = 3.38
RN (10^{-6}) = 3.30

AN CG = 3.94
W = 20122
OA L = 1.02
OH L = -2.42
OR L = -.01
DSB = -.35

AE L = 226
AE R = 236
PS 1 = 1544.4
PS 2 = 1542.8
H = 8657
DEL P = -.07

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.242	157.5	693.00	-.159	247.5	685.00	-.149
0.0	620.00	-.181	157.5	700.00	-.055	252.5	685.00	-.138
0.0	637.00	-.118	180.0	590.15	-.035	282.0	685.00	-.143
0.0	665.00	-.052	180.0	625.35	-.043	292.5	685.00	-.102
0.0	675.00	-.180	180.0	561.60	-.159	315.0	644.35	-.057
0.0	685.00	-.185	180.0	685.00	-.143	315.0	658.00	-.099
0.0	687.00	-.188	180.0	687.30	-.164	315.0	670.25	-.096
0.0	693.00	-.197	181.0	693.00	-.139	315.0	685.00	-.124
0.0	700.00	-.003	181.0	694.00	-.032	320.0	687.30	-.142
0.0	706.00	-.116	180.0	700.00	-.111	315.0	693.00	-.102
22.5	693.00	-.164	202.5	706.00	-.165	315.0	695.00	-.045
22.5	700.00	-.003	215.0	693.00	-.139	315.0	700.00	-.026
45.0	693.00	-.069	215.0	685.00	-.159	315.0	702.00	-.103
45.0	700.00	-.008	225.0	687.30	-.003	315.0	706.00	-.130
45.0	706.00	-.023	225.0	520.00	-.029	TCL	658.70	-.067
50.0	685.00	-.155	225.0	571.00	-.001	TCL	685.00	-.111
50.0	687.30	-.186	225.0	611.00	-.029	BCL	586.00	-.064
77.0	685.00	-.022	225.0	624.50	-.060	BCL	646.00	-.086
90.0	693.00	.044	225.0	643.00	-.056	BCL	671.00	-.065
90.0	706.00	-.003	225.0	667.00	-.150			
135.0	685.00	-.118	225.0	693.00	.078			
135.0	687.30	-.110	225.0	695.00	.021			
135.0	693.00	-.073	225.0	700.00	.100			
135.0	695.00	-.011	225.0	702.00	.113			
135.0	700.00	.024	225.0	706.00				
135.0	702.00	.048						
135.0	706.00	.067						

TABLE 3.—Continued

M = .621

Q = 423.2

ALPHA = 5.58

BETA = -.55

NPR = 2.86

RN (10^{-6}) = 3.57

AN CG = 4.12

W = 20049

DA L = 1.36

DH L = -1.98

DR L = .17

DSB = -.46

AE L = 207

AE R = 211

PS 1 = 1581.4

PS 2 = 1582.0

M = 8060

DEL P = -.07

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.234	157.5	693.00	-.150	247.5	685.00	-.153
0.0	620.00	-.176	157.5	700.00	-.037	252.5	685.00	-.142
0.0	637.00	-.111	180.0	590.15	-.037	282.0	685.00	-.146
0.0	665.00	-.047	180.0	625.35	-.042	292.5	685.00	-.108
0.0	675.00	-.179	180.0	661.60	-.040	315.0	644.35	-.055
0.0	685.00	-.180	180.0	685.00	-.160	315.0	658.00	-.096
0.0	687.00	-.182	180.0	687.30	-.128	315.0	670.25	-.097
0.0	693.00	-.196	180.0	693.00	-.162	315.0	685.00	-.129
0.0	700.00	-.006	181.0	694.00	-.133	320.0	687.30	-.147
0.0	706.00	.114	180.0	700.00	-.019	315.0	693.00	-.103
22.5	693.00	-.159	180.0	706.00	-.109	315.0	695.00	-.040
22.5	700.00	.012	202.5	693.00	-.167	315.0	700.00	-.035
45.0	693.00	-.056	215.0	685.00	-.142	315.0	702.00	-.101
45.0	700.00	.012	215.0	687.30	-.164	315.0	706.00	-.128
45.0	706.00	.023	225.0	520.00	-.001	TCL	658.70	-.045
50.0	685.00	-.147	225.0	571.00	-.031	TCL	685.00	-.106
50.0	687.30	-.174	225.0	611.00	-.000	BCL	586.00	-.063
77.0	685.00	.029	225.0	624.50	-.027	BCL	646.00	-.083
90.0	693.00	.047	225.0	643.00	-.059	BCL	571.00	-.060
90.0	706.00	.005	225.0	667.00	-.054			
135.0	685.00	-.110	225.0	693.00	-.152			
135.0	687.30	-.103	225.0	695.00	-.072			
135.0	693.00	-.059	225.0	700.00	.031			
135.0	695.00	.002	225.0	702.00	.101			
135.0	700.00	.029	225.0	706.00	.107			
135.0	702.00	.043						
135.0	706.00	.058						

TABLE 3.—Continued

M = .920
Q = 844.0
ALPHA = 2.10
BETA = -2.51
NPR = 4.10
RN (10^{-6}) = 4.92

AN CG = 4.13
W = 21047
DA L = .43
DH L = -3.06
DR L = -2.79
DSB = -3.17

AE L = 235
AE R = 244
PS 1 = 1454.0
PS 2 = 1454.0
H = 10547
DEL P = -.16

PHI	X	CP		PHI	X	CP		PHI	X	CP
0.0	596.00	-.303		157.5	693.00	-.044		247.5	685.00	-.172
0.0	620.00	-.309		157.5	700.00	.036		252.5	685.00	-.142
0.0	637.00	-.084		180.0	590.15	-.065		282.5	685.00	-.122
0.0	665.00	-.023		180.0	625.35	-.072		292.5	685.00	-.096
0.0	675.00	-.167		180.0	661.60	-.087		315.0	644.35	-.036
0.0	685.00	-.179		180.0	685.00	-.137		315.0	658.00	-.095
0.0	687.00	-.158		180.0	687.30	-.121		315.0	670.25	-.103
0.0	693.00	-.171		180.0	693.00	-.093		315.0	685.00	-.132
0.0	700.00	-.046		181.0	694.00	-.071		320.0	687.30	-.141
0.0	706.00	-.149		180.0	700.00	-.032		315.0	693.00	-.102
22.5	693.00	-.121		180.0	706.00	-.125		315.0	695.00	-.035
22.5	700.00	-.057		202.5	693.00	-.141		315.0	700.00	-.040
45.0	693.00	-.013		215.0	685.00	-.172		315.0	702.00	-.122
45.0	700.00	-.044		215.0	687.30	-.174		315.0	706.00	-.158
45.0	706.00	-.041		225.0	520.00	-.081		TCL	658.70	-.0C2
50.0	685.00	-.122		225.0	571.00	-.038		TCL	685.00	-.061
50.0	687.30	-.154		225.0	611.00	-.028		BCL	585.00	-.039
77.0	685.00	.063		225.0	624.50	-.093		BCL	646.00	-.104
90.0	693.00	.032		225.0	643.00	-.146		BCL	671.00	-.050
90.0	706.00	.082		225.0	667.00	-.119				
135.0	685.00	-.011		225.0	693.00	-.142				
135.0	687.30	-.002		225.0	695.00	-.045				
135.0	693.00	-.061		225.0	700.00	.051				
135.0	695.00	.054		225.0	702.00	.123				
135.0	700.00	.059		225.0	706.00	.144				
135.0	702.00	.050								
135.0	706.00	.040								

TABLE 3.—Continued

M =	.924
Q =	775.6
ALPHA =	2.45
BETA =	-.61
NPR =	4.21
RN (10^{-6}) =	4.62

AN CG =	3.91
W =	22888
DA L =	1.44
OH L =	-2.78
OR L =	.02
DSB =	-.28

AE L =	233
AE R =	238
PS 1 =	1324.4
PS 2 =	1326.4
H =	12935
DEL P =	-.13

PHI	X	CP
0.0	596.00	-.285
0.0	620.00	-.343
0.0	637.00	-.097
0.0	665.00	-.018
0.0	675.00	-.152
0.0	685.00	-.166
0.0	687.00	-.154
0.0	693.00	-.175
0.0	700.00	-.039
0.0	706.00	-.152
22.5	693.00	-.114
22.5	700.00	.051
45.0	693.00	-.014
45.0	700.00	.037
45.0	706.00	-.038
50.0	685.00	-.113
50.0	687.30	-.139
77.0	685.00	.062
90.0	693.00	.077
90.0	706.00	.021
135.0	685.00	-.009
135.0	687.30	.000
135.0	693.00	.044
135.0	695.00	.047
135.0	700.00	.044
135.0	702.00	.040
135.0	706.00	.037

PHI	X	CP
157.5	693.00	-.051
157.5	700.00	.032
180.0	590.15	-.052
180.0	625.35	-.059
180.0	661.60	-.075
180.0	685.00	-.138
180.0	687.30	.053
180.0	693.00	-.099
181.0	694.00	-.070
180.0	700.00	.036
180.0	706.00	.137
202.5	693.00	-.128
215.0	685.00	-.156
215.0	687.30	-.166
225.0	520.00	-.099
225.0	571.00	-.036
225.0	611.00	-.002
225.0	624.50	-.051
225.0	643.00	-.115
225.0	667.00	-.107
225.0	693.00	-.132
225.0	695.00	-.039
225.0	700.00	.056
225.0	702.00	.132
225.0	706.00	.158

PHI	X	CP
247.5	685.00	-.160
252.5	685.00	-.135
282.0	685.00	-.113
292.5	685.00	-.091
315.0	644.35	-.020
315.0	658.00	-.073
315.0	670.25	-.086
315.0	685.00	-.115
320.0	687.30	-.125
315.0	693.00	-.081
315.0	695.00	-.014
315.0	700.00	.058
315.0	702.00	.131
315.0	706.00	.157
TCL	658.70	.010
TCL	685.00	-.058
BCL	586.00	-.075
BCL	646.00	-.105
BCL	671.00	-.039

TABLE 3.—Continued

M = .877
Q = 418.2
ALPHA = 4.52
BETA = -.78
NPR = 5.17
RN (10^-6) = 2.96

AN CG = 3.89
W = 22113
DA L = 7.40
DH L = -2.61
DR L = -.28
DSB = -.23

AE L = 224
AE R = 225
PS 1 = 791.0
PS 2 = 789.2
W = 25234
DEL P = -.04

PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.365	157.5	693.00	-.078	247.5	685.00	-.162
0.0	620.00	-.224	157.5	700.00	.034	252.5	685.00	-.144
0.0	637.00	-.087	180.0	690.15	-.049	282.0	685.00	-.120
0.0	665.00	-.027	180.0	625.35	-.060	292.5	685.00	-.094
0.0	675.00	-.158	180.0	661.60	-.065	315.0	644.35	-.026
0.0	685.00	-.164	180.0	685.00	-.154	315.0	658.00	-.084
0.0	687.00	-.158	180.0	687.30	-.094	315.0	670.25	-.093
0.0	693.00	-.158	180.0	693.00	-.109	315.0	685.00	-.114
0.0	700.00	-.053	181.0	694.00	-.075	320.0	687.30	-.121
0.0	706.00	.160	180.0	700.00	.056	315.0	693.00	-.058
22.5	693.00	-.110	180.0	706.00	.143	315.0	695.00	-.010
22.5	700.00	.051	202.5	693.00	-.133	315.0	700.00	.081
45.0	693.00	-.014	215.0	685.00	-.157	315.0	702.00	-.133
45.0	700.00	.034	215.0	687.30	-.171	315.0	706.00	-.165
45.0	706.00	.042	225.0	520.00	-.032	TCL	658.70	-.001
50.0	685.00	-.113	225.0	571.00	-.034	TCL	685.00	-.073
50.0	687.30	-.134	225.0	611.00	-.003	BCL	586.00	-.072
77.0	685.00	.050	225.0	624.50	.051	BCL	646.00	-.102
90.0	693.00	.070	225.0	643.00	-.110	BCL	671.00	-.054
90.0	706.00	.027	225.0	667.00	-.097			
135.0	685.00	-.048	225.0	693.00	-.125			
135.0	687.30	-.035	225.0	695.00	-.025			
135.0	693.00	.026	225.0	700.00	.075			
135.0	695.00	.045	225.0	702.00	.144			
135.0	700.00	.042	225.0	706.00	.166			
135.0	702.00	.044						
135.0	706.00	.050						

TABLE 3.—Concluded

M = 1.150	AN CG = 3.96	AE L = 334
G = 801.1	W = 20791	AE R = 339
ALPHA = 2.98	DA L = 1.09	PS 1 = 866.0
BETA = -.57	DH L = -4.62	PS 2 = 866.5
NPR = 5.78 -6	DR L = -.91	H = 22757
RN (10) = 4.20	DSB = -.28	DEL P = -.13

| PHI	X	CP	PHI	X	CP	PHI	X	CP
0.0	596.00	-.151	157.5	693.00	-.172	247.5	685.00	-.258
0.0	623.00	-.256	157.5	700.00	-.396	252.5	685.00	-.276
0.0	637.00	-.294	180.0	590.15	-.111	282.0	685.00	-.300
0.0	665.00	-.025	180.0	625.35	-.128	292.5	685.00	-.260
0.0	675.00	-.182	180.0	661.60	-.108	315.0	644.35	-.108
0.0	685.00	-.241	180.0	685.00	-.203	315.0	658.00	-.177
0.0	687.00	-.247	180.0	687.30	-.239	315.0	570.25	-.140
0.0	693.00	-.368	180.0	693.00	-.163	315.0	685.00	-.242
0.0	700.00	-.116	181.0	694.00	-.202	320.0	687.30	-.271
0.0	706.00	-.056	180.0	700.00	-.369	315.0	693.00	-.273
22.5	693.00	-.334	180.0	706.00	-.053	315.0	695.00	-.340
22.5	730.00	-.112	202.5	693.00	-.174	315.0	700.00	-.125
45.0	693.00	-.321	215.0	685.00	-.203	315.0	702.00	-.018
45.0	700.00	-.133	215.0	687.30	-.237	315.0	706.00	-.017
45.0	706.00	-.071	225.0	520.00	-.021	TCL	658.70	-.213
50.0	685.00	-.225	225.0	571.00	-.061	TCL	685.00	-.124
50.0	687.30	-.301	225.0	611.00	-.086	BCL	586.00	-.128
77.0	685.00	-.093	225.0	624.50	-.046	BCL	646.00	-.108
90.0	693.00	-.066	225.0	643.00	-.086	BCL	571.00	-.071
90.0	706.00	-.115	225.0	667.00	-.140			
135.0	685.00	-.200	225.0	693.00	-.240			
135.0	687.30	-.163	225.0	695.00	-.333			
135.0	693.00	-.192	225.0	700.00	-.381			
135.0	695.00	-.267	225.0	702.00	-.109			
135.0	700.00	-.209	225.0	706.00	-.055			
135.0	702.00	-.081						
135.0	706.00	-.034						

67
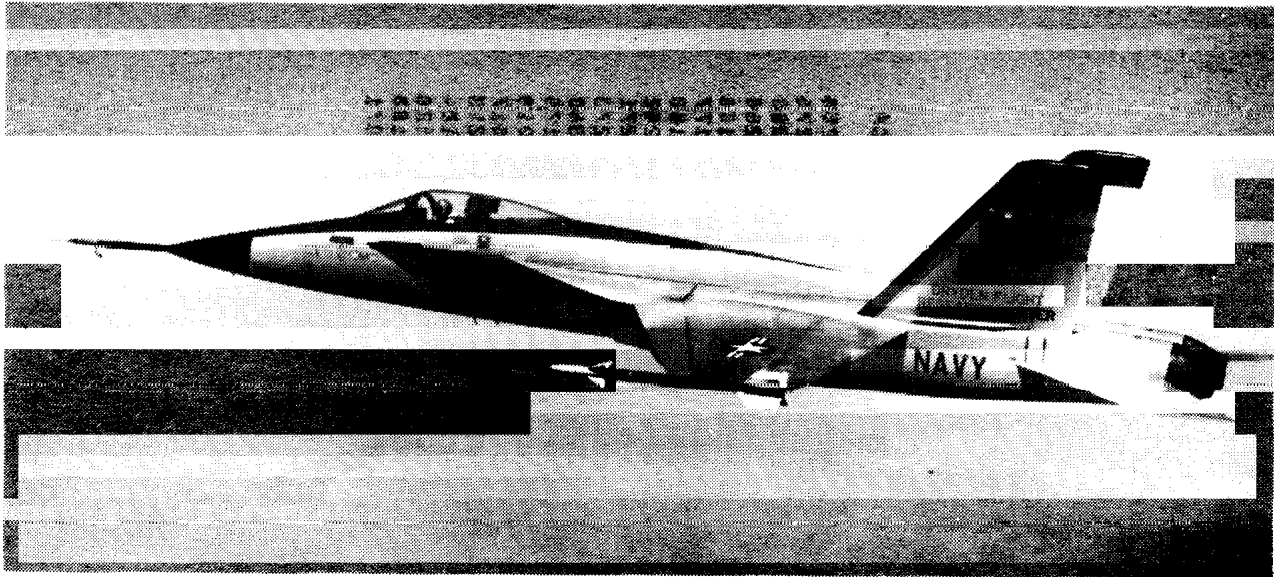
Figure 1.   YF-17 aircraft.
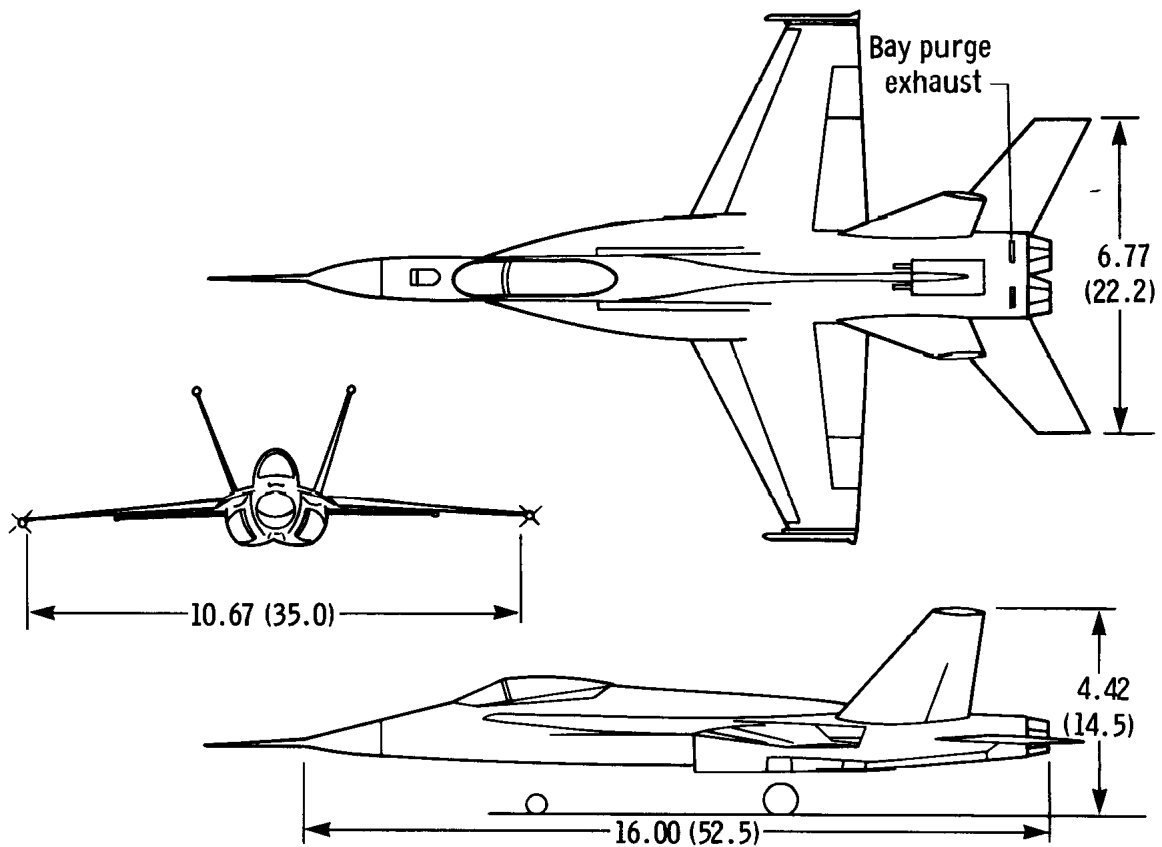
Figure 2.   Three-view drawing of YF-17 airplane. Dimensions are in meters (feet).
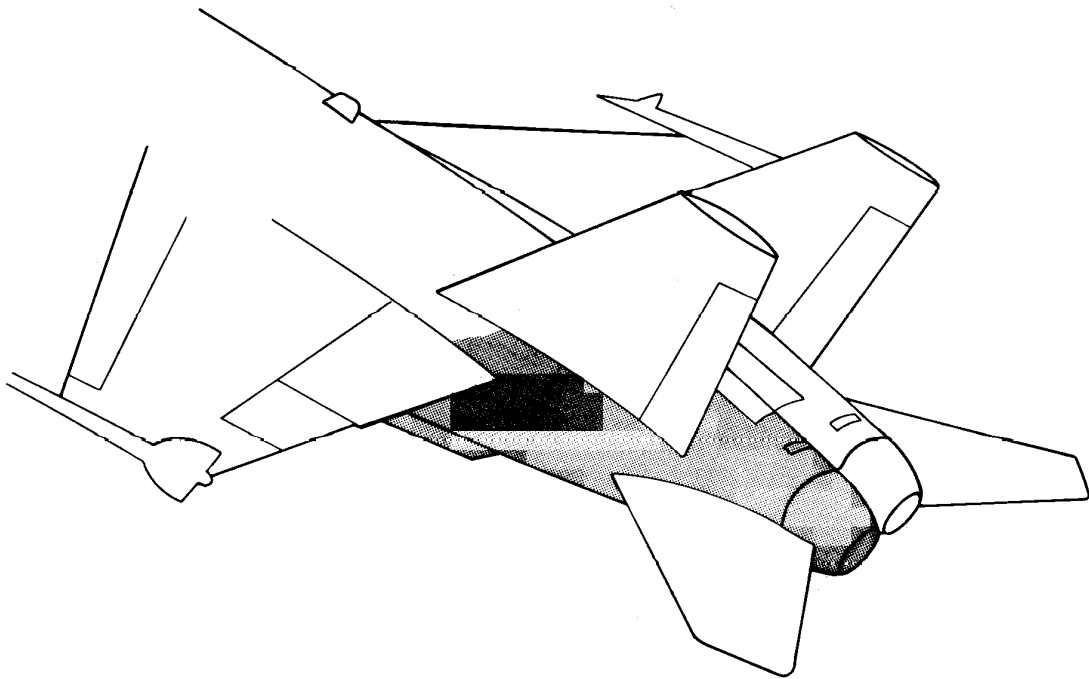
Figure 3. Rear view of instrumented region (shaded area) on left fuselage and nozzle.
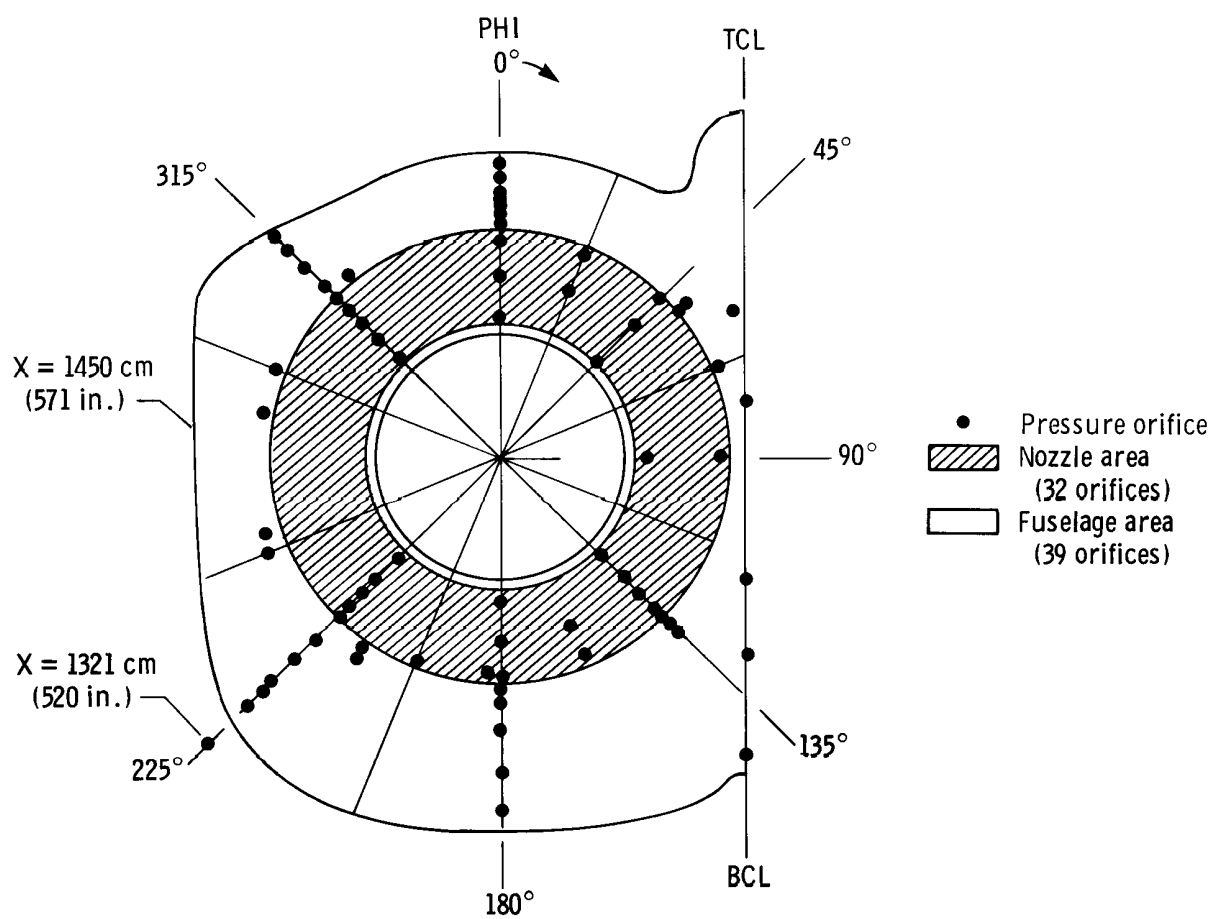
(a) Aft view looking forward.

Figure 4. Locations of flush pressure orifices.

Fuselage station, in.

PHI = 0°

PHI = 225°

Pressure orifice

Fuselage station, cm
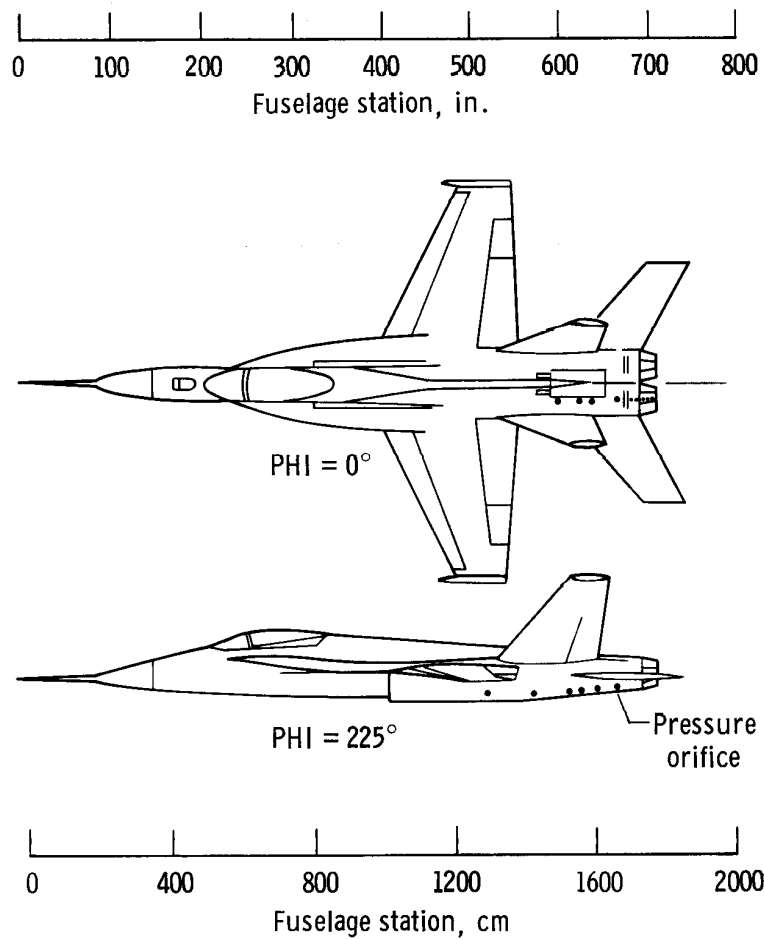
(b) Orifice locations for PHI = 0° and 225°.
L = 1804.87 cm (710.58 in.).

Figure 4. Concluded.

Bay purge
exhaust

Surface pressure
orifice

Compressor
face bleed
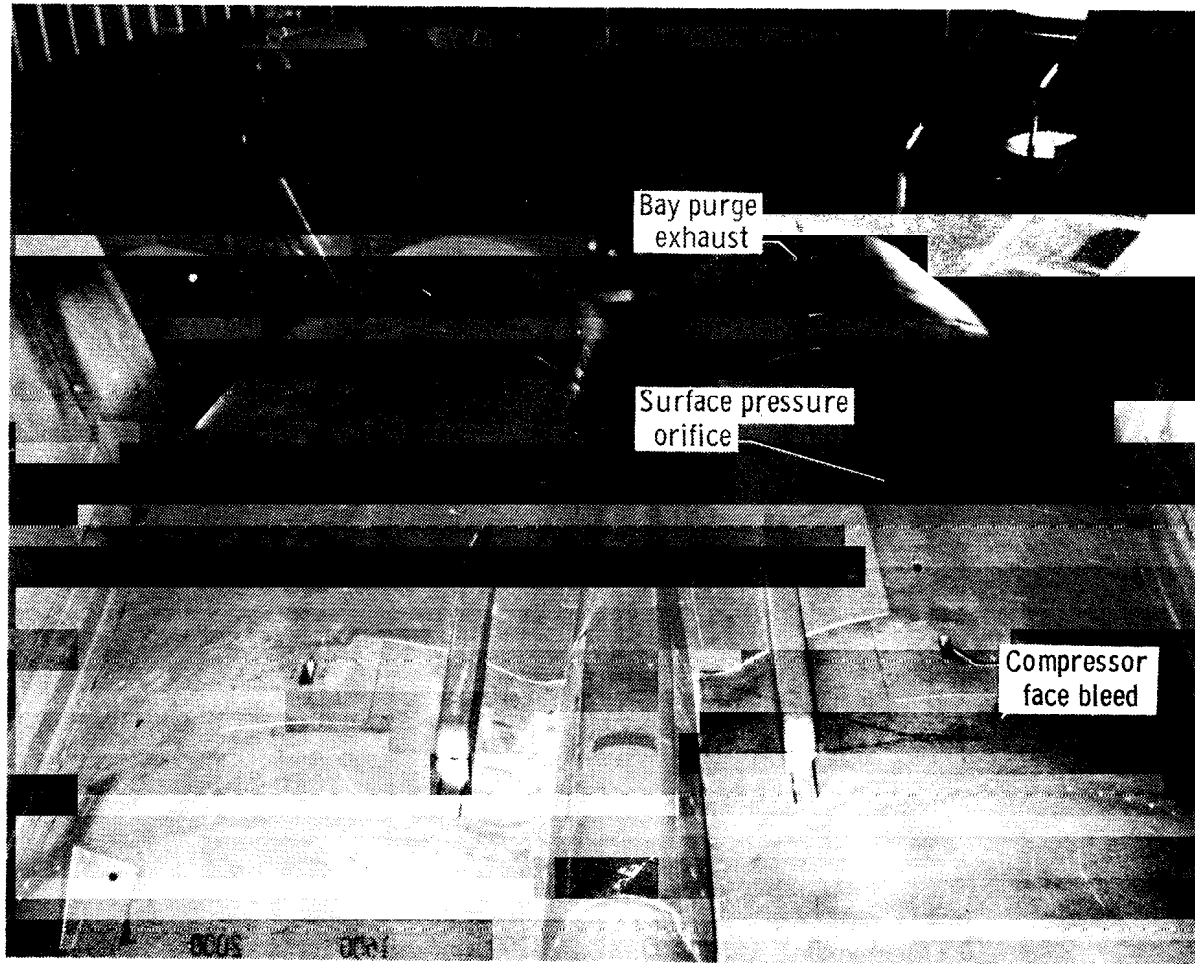
E 30543

Figure 5. Bay purge exhaust, compressor face bleed,
and surface pressure orifices at PHI = 0°.
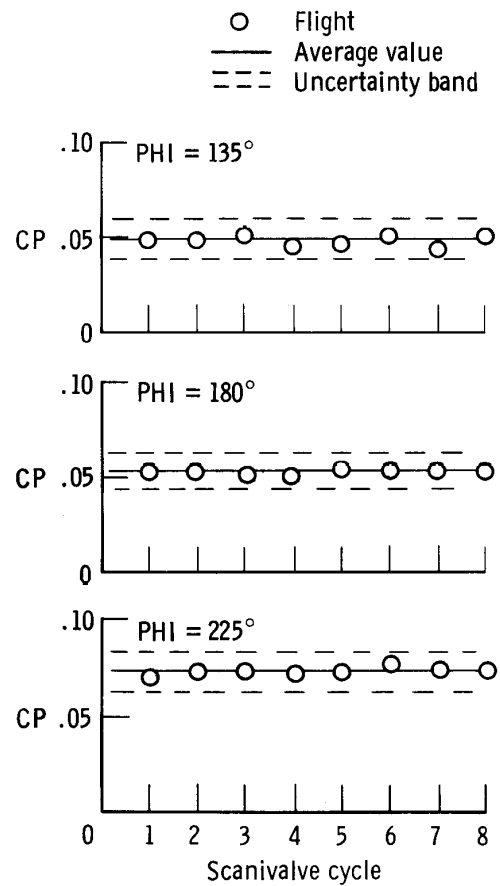
Figure 6. Typical stability of
pressure at X/L = 0.99 for
three circumferential locations.

$M = 0.908, R = 2.25 \times 10^8$,
$AN \ CG = 0.95g$.
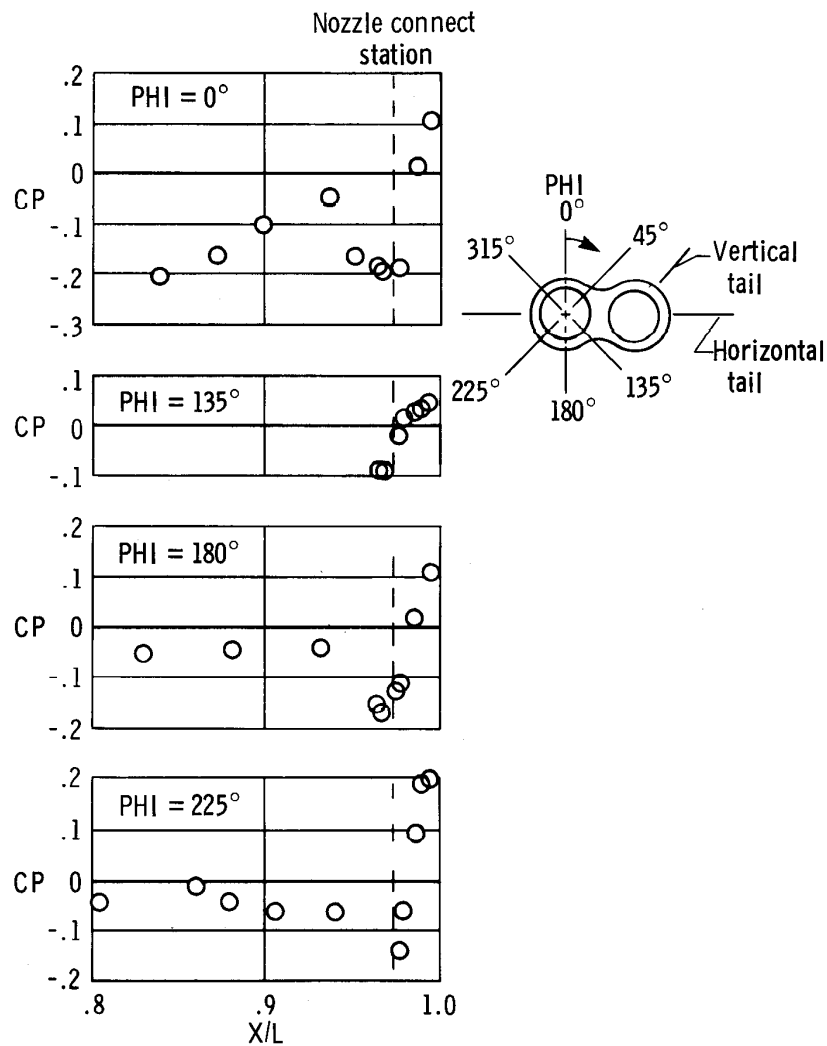
(a) $M = 0.610$, $ALPHA = 3.60°$, $R = 1.22 \times 10^8$, $NPR = 1.84$, and $DH\ L = -1.10°$.

Figure 7. Representative pressure coefficients for four radial locations.
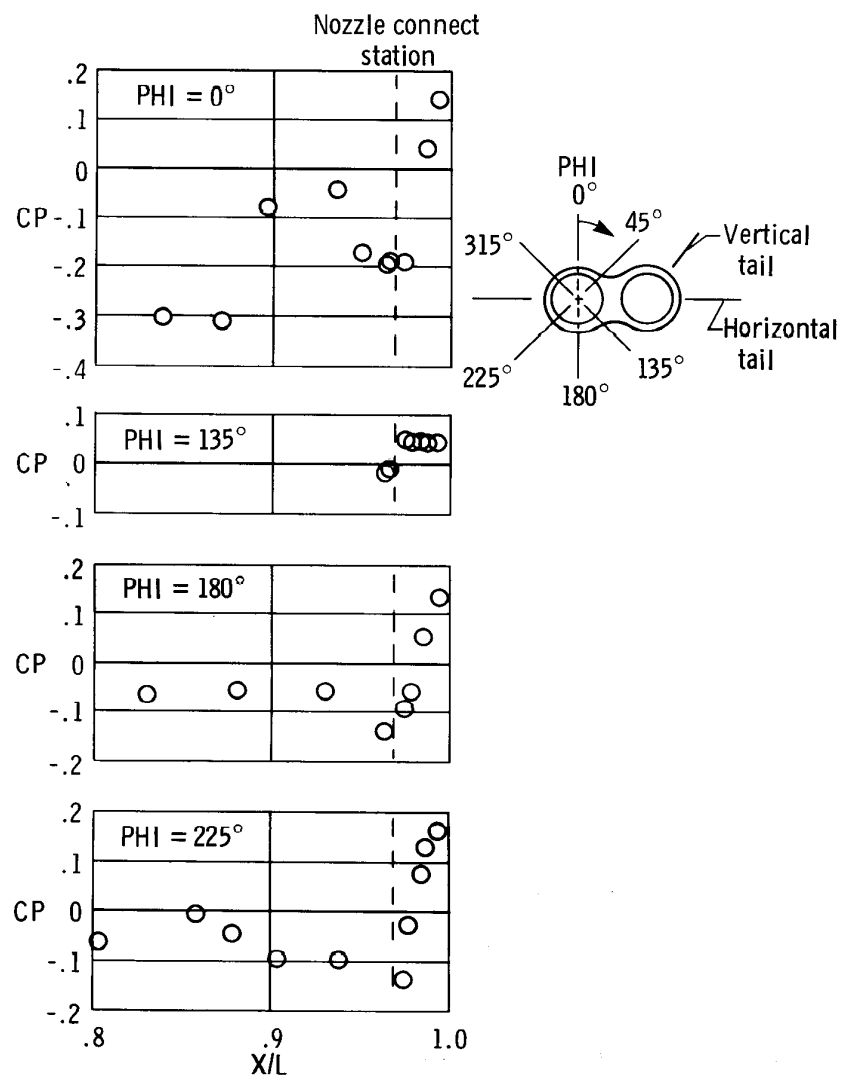
(b) $M = 0.910$, $ALPHA = 0.90°$, $R = 2.26 \times 10^8$, $NPR = 3.32$, and $DH\ L = -0.88°$.

Figure 7. Continued.
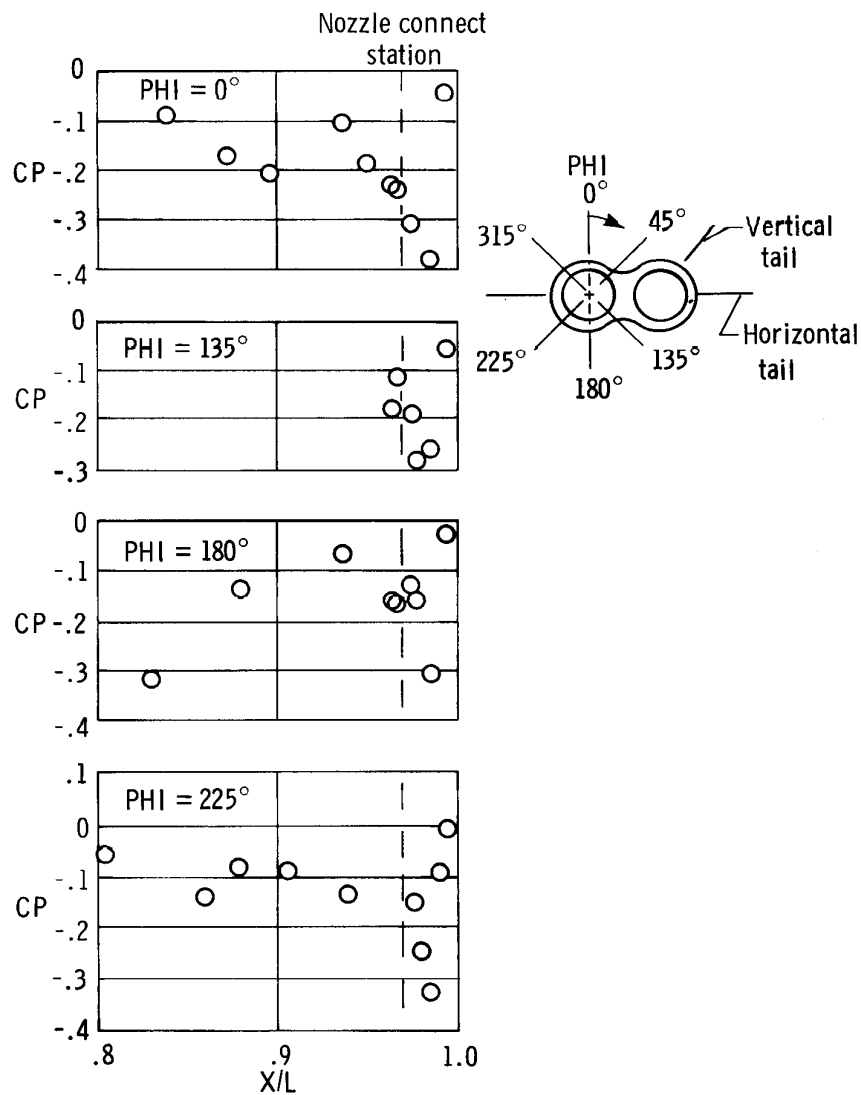
(c) $M = 1.190$, $ALPHA = 0.70°$, $R = 2.41 \times 10^8$,
$NPR = 5.92$, and $DH L = 0.22°$.

Figure 7. Concluded.

	M	ALPHA, deg	R	NPR	DH L, deg
O	0.610	2.10	2.11×10^8	1.98	-0.54
□	0.620	3.10	2.00	1.86	-1.09
◇	0.600	5.10	2.05	2.19	-2.01
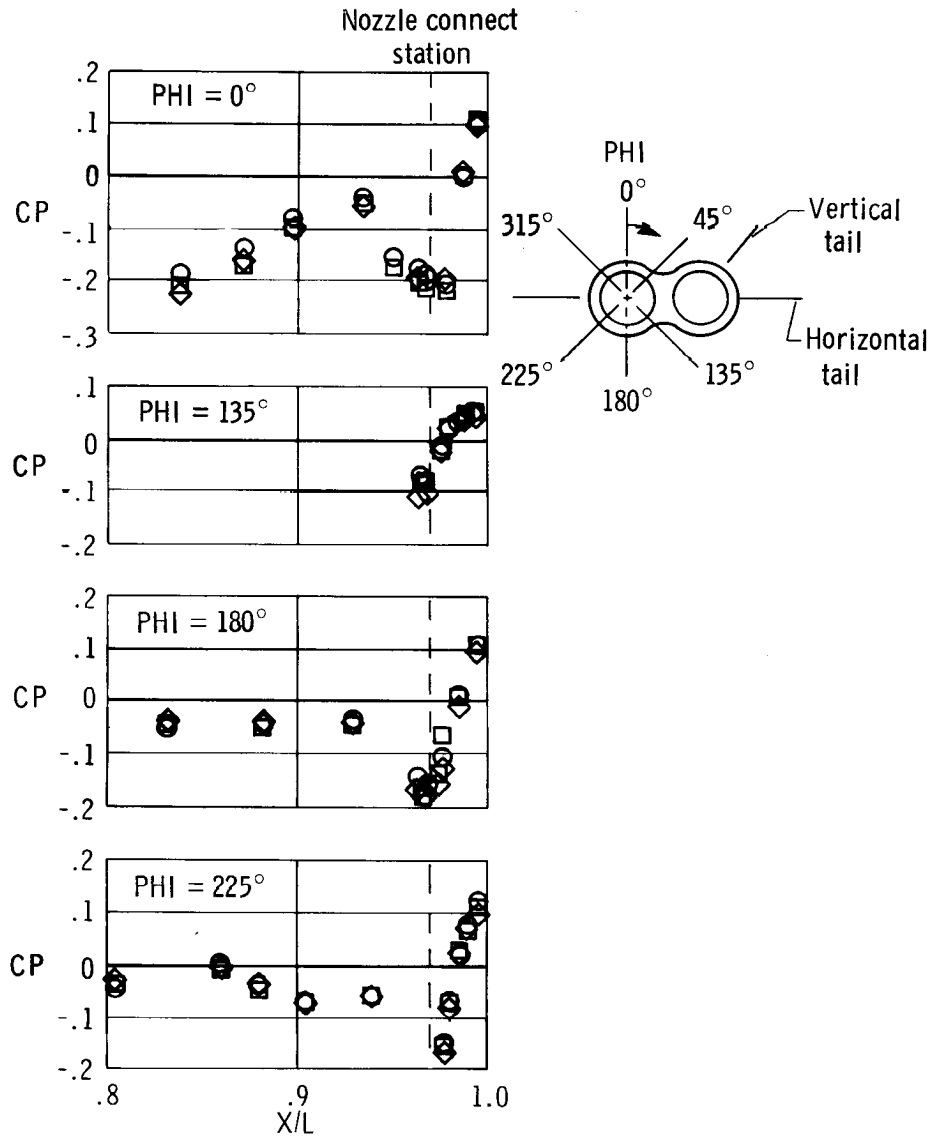
(a) $M \approx 0.60$.

Figure 8. Effect of angle of attack on pressure coefficients for four radial locations.

	M	ALPHA, deg	R	NPR	DH L, deg
○	0.900	1.38	1.66×10^8	3.42	-0.88
□	0.930	2.44	2.44	4.28	-2.21
◇	0.880	4.52	4.52	5.17	-2.61
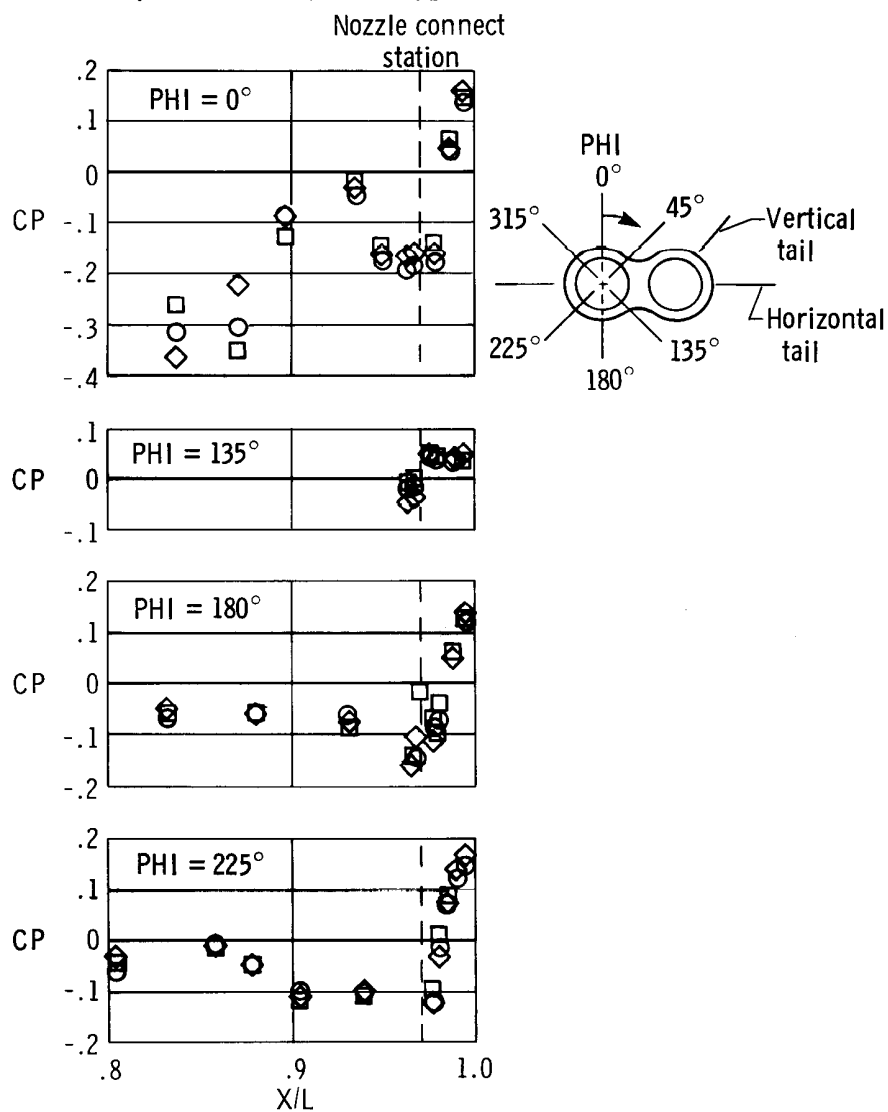
(b) $M \approx 0.90$.

Figure 8. Continued.

	M	ALPHA, deg	R	NPR	DH L, deg
○	1.190	0.68	2.41×10^8	5.92	0.22
□	1.180	2.11	2.34	6.34	-1.87
◇	1.150	2.98	2.49	5.78	-4.62

(c) $M \approx 1.2$.

Figure 8. Concluded.

|	M	NPR	ALPHA, deg	R	DH L, deg
O	0.600	2.02	5.44	1.55×10^8	-1.63
□	0.640	3.24	6.96	0.72	-1.44
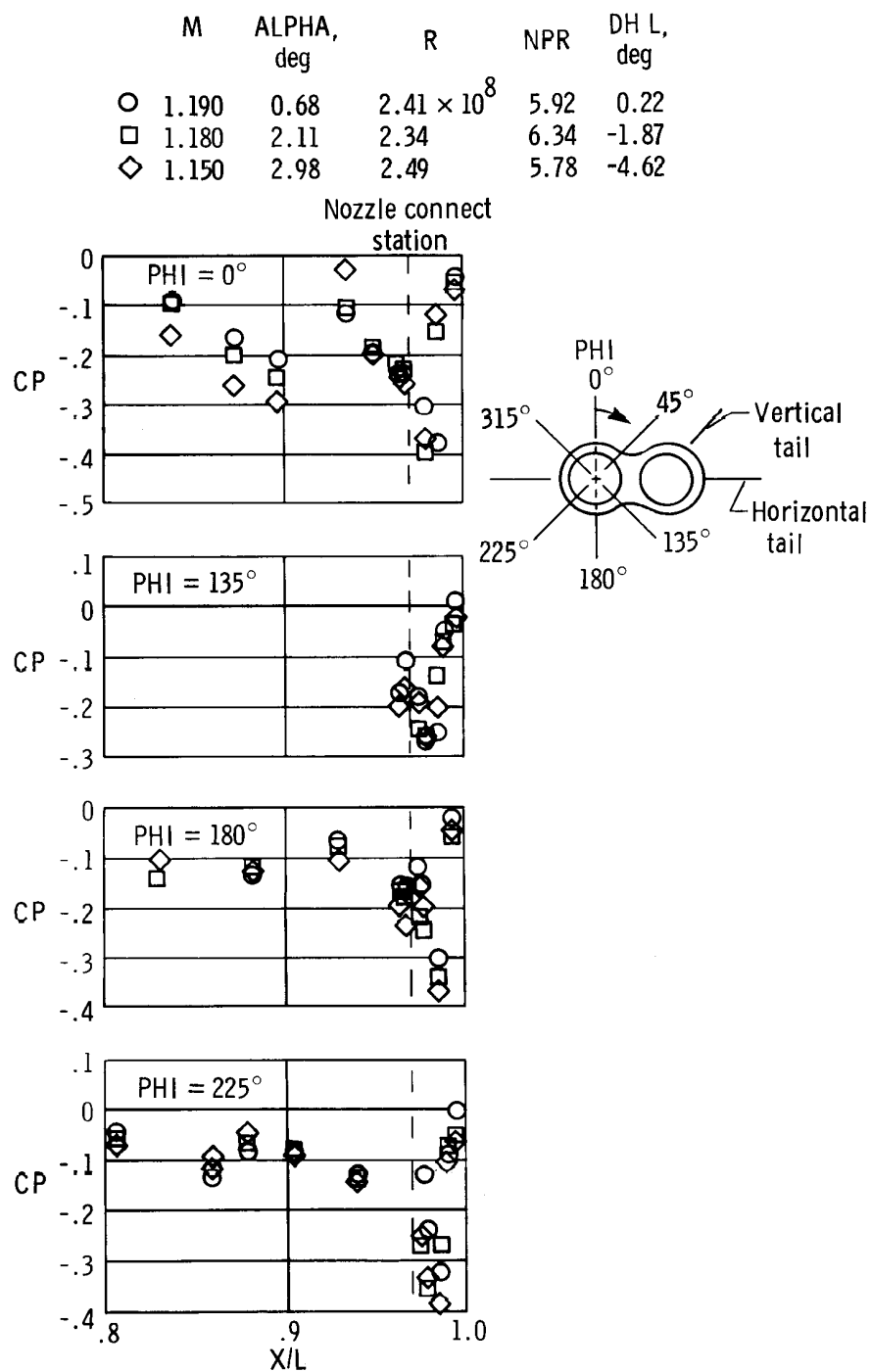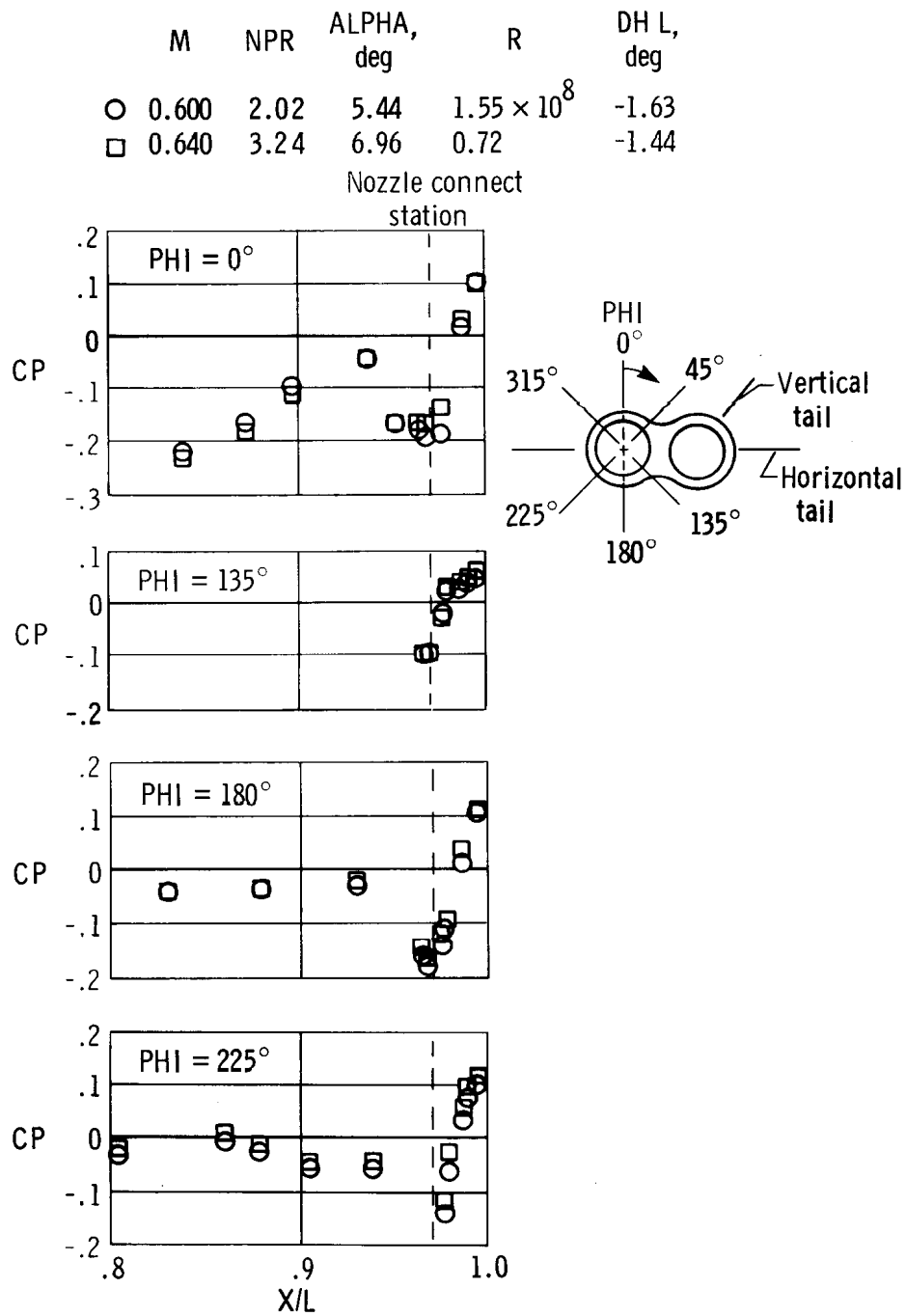
(a) $M \approx 0.60$, nonafterburning condition.

Figure 9. Effect of nozzle pressure ratio on pressure coefficients for four radial locations.

	M	NPR	ALPHA, deg	R	DH L, deg
○	0.880	3.37	2.57	1.59×10^8	-1.48
□	0.900	3.79	2.73	0.91	-1.34
◇	0.925	4.15	2.58	0.95	-1.75
△	0.910	5.67	3.55	0.60	-2.11
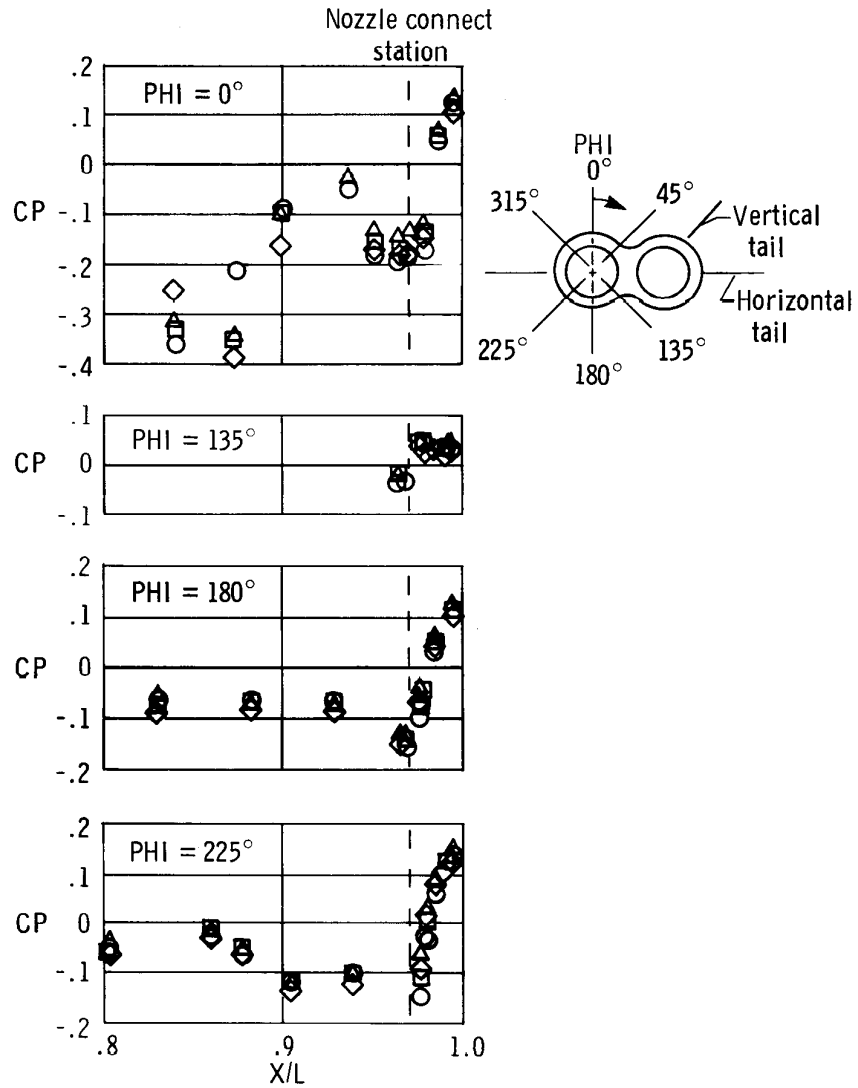
(b) M = 0.90, nonafterburning condition.

Figure 9. Continued.

	M	NPR	ALPHA, deg	R	DH L, deg
○	1.150	5.78	2.98	2.48×10^8	-4.62
□	1.190	7.36	3.00	1.33	-3.77
◇	1.250	8.08	2.85	0.92	-2.78
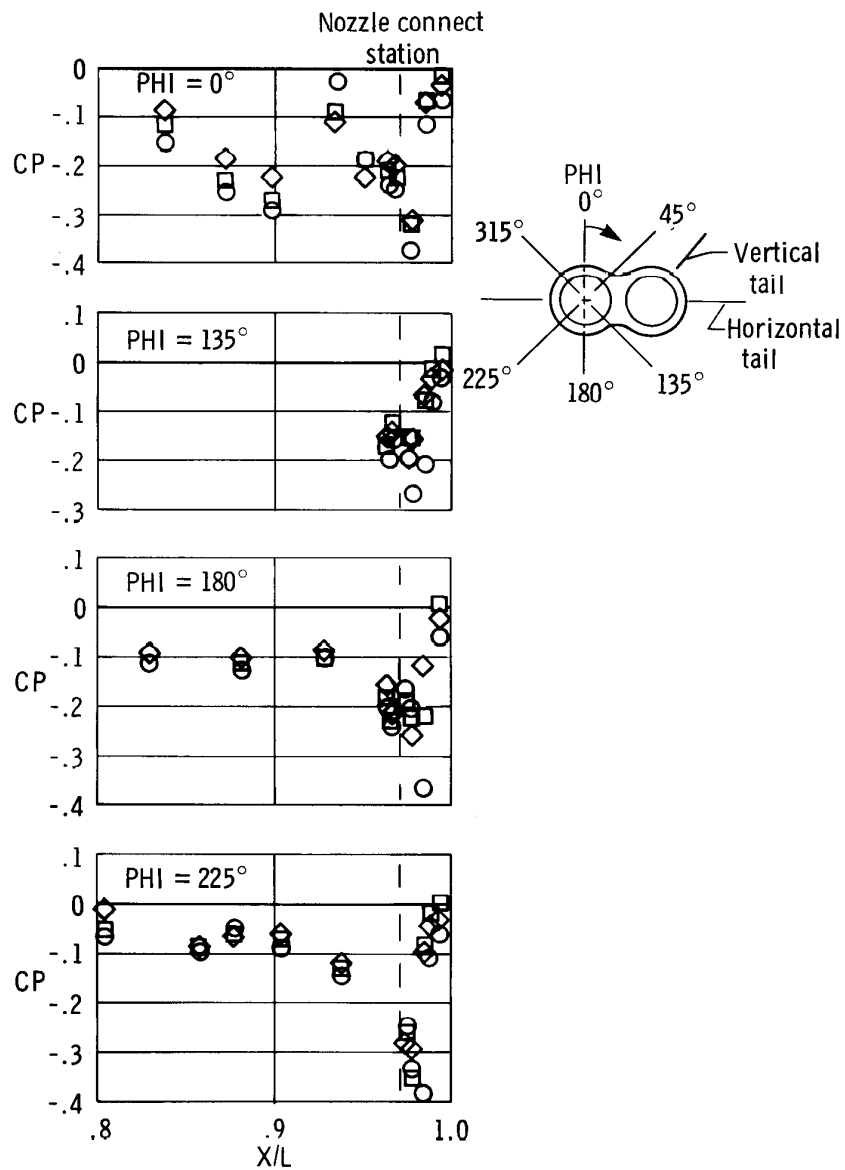
(c) M = 1.20, afterburning condition.

Figure 9. Concluded.

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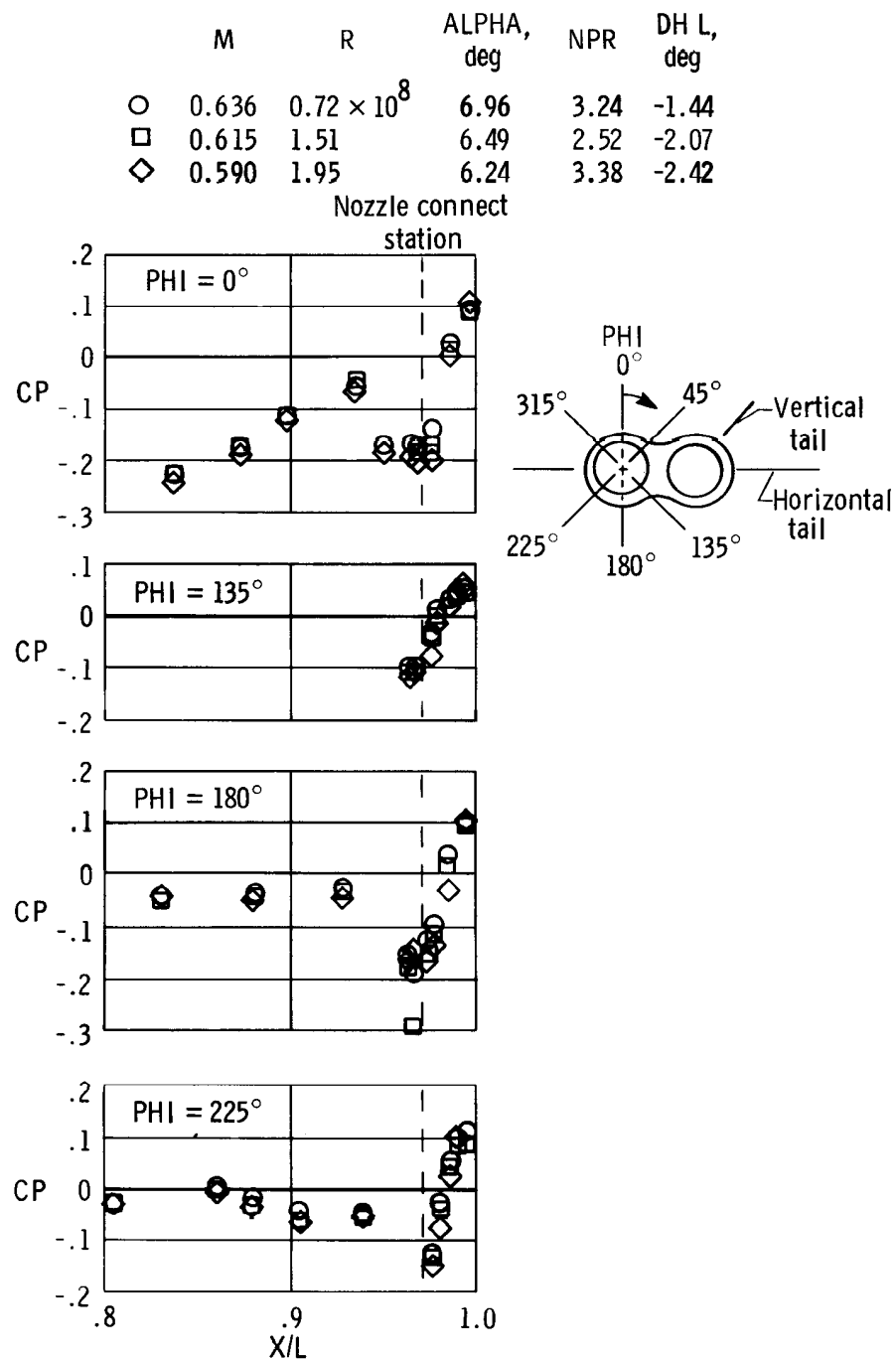
(a) $M \approx 0.60$.

Figure 10. Effect of Reynolds number on pressure coefficients for four radial locations.

	M	R	ALPHA, deg	NPR	DH L, deg
○	0.925	0.95×10^8	2.58	4.15	-1.75
□	0.880	1.59	2.57	3.37	-1.48
◇	0.924	2.74	2.45	4.21	-2.78
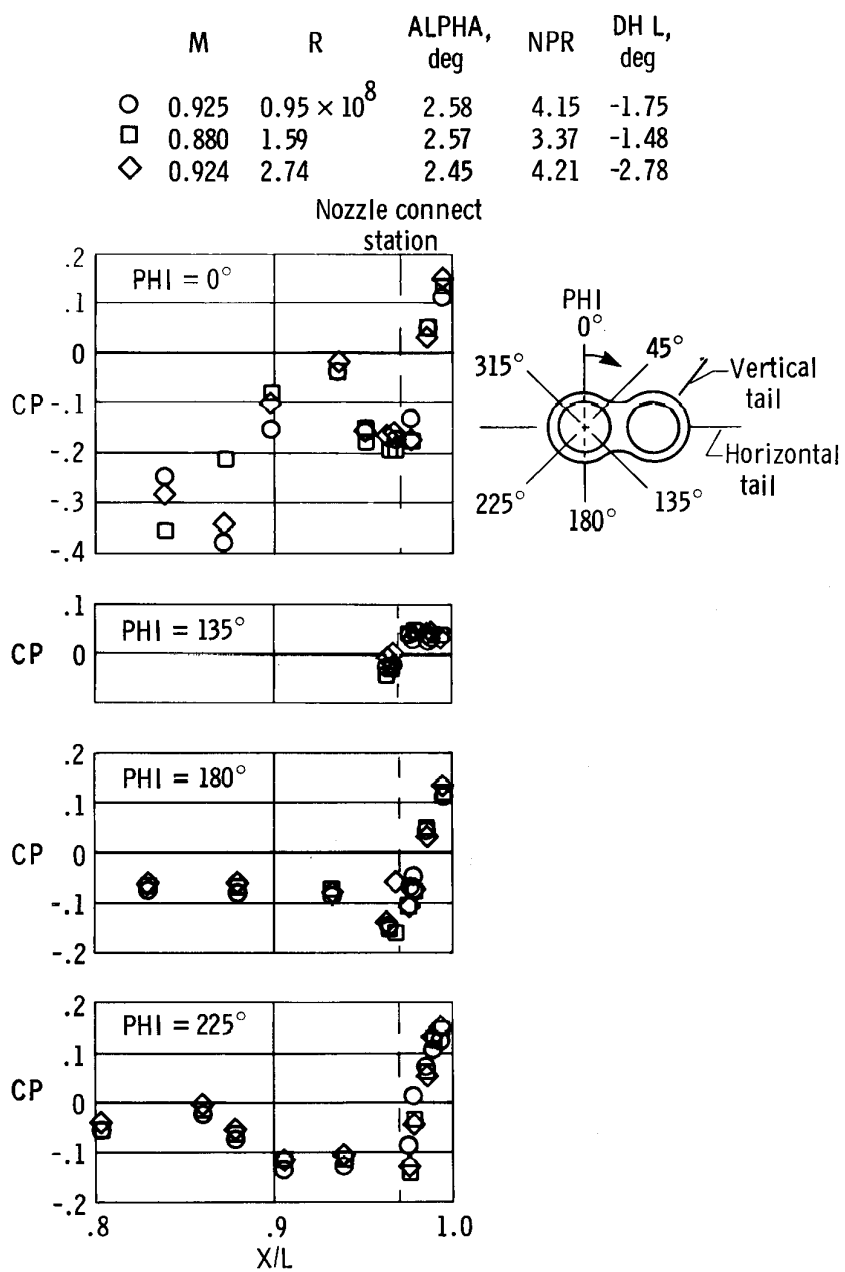
(b) $M \approx 0.90$.

Figure 10. Continued.

	M	R	ALPHA, deg	NPR	DH L, deg
○	1.250	0.94 × 10⁸	3.05	7.94	-3.78
□	1.190	1.33	3.00	7.36	-3.77
◇	1.150	2.48	2.98	5.78	-4.62
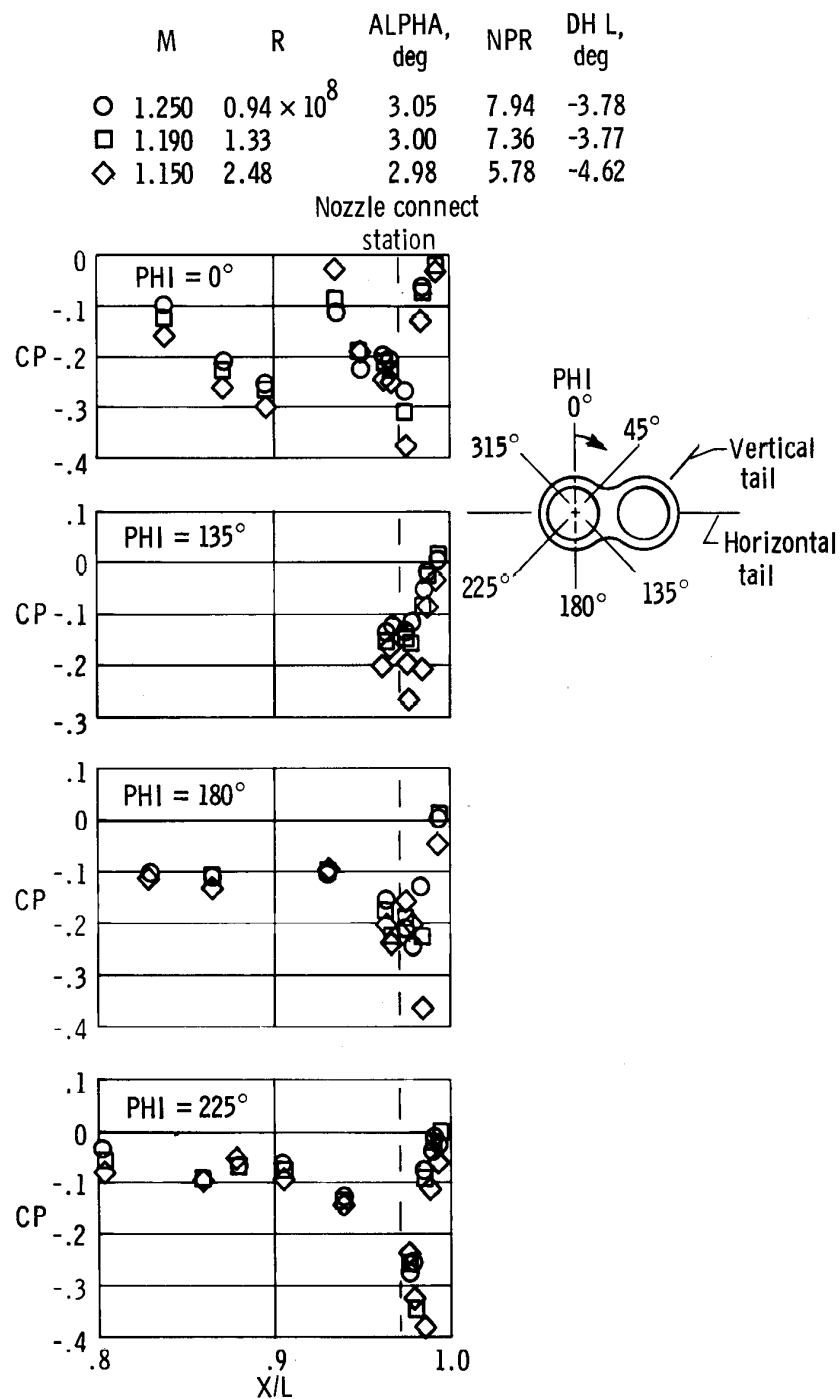
(c) M ≈ 1.20.

Figure 10. Concluded.

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15. Supplementary Notes

16. Abstract

Afterbody pressure distribution data were obtained in flight from an airplane having twin side-by-side jet exhausts. The data were obtained in level flight at Mach numbers from 0.60 to 1.60 and at elevated load factors for Mach numbers of 0.60, 0.90, and 1.20. The test altitude varied from 2300 meters (7500 feet) to 15,200 meters (50,000 feet) over a speed range that provided a matrix of constant Mach number and constant unit Reynolds number test conditions.

The results of the full-scale flight afterbody pressure distribution program are presented in this report in the form of plotted pressure distributions and tabulated pressure coefficients with Mach number, angle of attack, engine nozzle pressure ratio, and unit Reynolds number as controlled parameters. Wind-tunnel tests for 0.1-scale and 0.2-scale models of the full-scale aircraft have been completed but are reported separately.

17. Key Words (Suggested by Author(s)) Afterbody pressure Propulsion-airframe interaction YF-17 airplane	18. Distribution Statement Unclassified—Unlimited STAR Category: 02		
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